UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

NOV 21 1991

OFFICE OF
SOLID WASTE AND EMERGENCY RESPONSE

MEMORANDUM

Directive #9285.4-06

SUBJECT: ATSDR Health Consultations Under CERCLA

FROM: Henry L. Longest II, Director
Office of Emergency and Remedial Response

TO: Director, Waste Management Division,
Regions I, IV, V, and VII
Director, Emergency and Remedial Response Division,
Region II
Director, Hazardous Waste Management Division,
Regions III, VI, VIII and IX
Director, Hazardous Waste Division
Region X
Director, Environmental Services Division
Regions I, VI, and VII

PURPOSE AND SUMMARY

The purpose of this memorandum is to clarify issues related to Agency for Toxic Substances and Disease Registry (ATSDR) health consultations under CERCLA. These clarifications apply to ATSDR health consultations requested by the Superfund removal, remedial, and site assessment programs.

(1) EPA Regions should consult with Headquarters prior to using an ATSDR health consultation as the basis for selecting a residential soil cleanup level for lead, for CERCLA removal and/or remedial sites, that is greater or less than EPA's recommended interim range of 500-1,000 ppm.

(2) Regions also should consult with Headquarters before taking actions based on other ATSDR health consultations that raise similar nationally significant or precedent-setting issues for the Superfund program.

(3) Findings and conclusions of ATSDR health consultations are strictly site-specific and do not establish national EPA policy. ATSDR health consultations should not be applied to situations beyond the specific site for which they were developed.

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GOVERNMENT EXHIBIT H

BACKGROUND

CERCLA section 104(i)(4) directs ATSDR to "provide consultations upon request on health issues relating to exposure to hazardous or toxic substances, on the basis of available information, to the Administrator of EPA, State officials, and local officials." ATSDR defines a health consultation as a response from ATSDR to a specific question or specific request for information pertaining to a hazardous substance or site (e.g., Does a given level of mercury in water pose a threat to human health?). Health consultations, because they often are time-critical and require rapid response, are a more limited response than an ATSDR health assessment. EPA Regional staff frequently have found ATSDR health consultations to be very useful sources of information.

Health consultations typically are performed as joint efforts by ATSDR Regional offices and appropriate ATSDR Headquarters staff. The variety of topics encompassed can include environmental health, environmental medicine, epidemiology, toxicology, worker health and safety, acute release events, and site operations. Physicians, toxicologists, environmental engineers, environmental health scientists, and emergency response coordinators are available on a 24-hour basis for emergency response. ATSDR can deliver recommendations verbally or in writing, whichever is deemed most appropriate. Because of the importance of timely response to these types of requests, written health consultations are not routinely released for public review, but recommendations may be discussed with relevant federal, state, or local agencies prior to release.

DISCUSSION

Recently, there have been some CERCLA sites for which EPA has selected, based (at least in part) on ATSDR health consultations, residential soil lead cleanup levels that have been outside the range recommended by the Office of Solid Waste and Remedial Response (OSWER). OSWER has issued a directive and a memorandum providing guidance on cleanup levels for lead in soil at CERCLA sites:

> "Interim Guidance on Establishing Soil Lead Cleanup Levels at Superfund Sites," OSWER Directive #9355.4-02, September 1989
>
> "Update on OSWER Soil Lead Cleanup Guidance," Memorandum to Regions from OSWER Assistant Administrator, August 29, 1991

The August 1991 memorandum, which provides a progress report on OSWER's efforts to revise the September 1989 directive, reaffirms the recommended interim soil cleanup level of 500-1,000 ppm total lead for CERCLA sites established in that directive. It also states that "OSWER believes that the best

available approach is to use the EPA Uptake Biokinetic (UBK) Model as a risk assessment tool to predict blood lead levels and aid the risk management decision on soil lead cleanup levels at CERCLA/RCRA sites which are characterized as residential." However, before issuing a final directive recommending the UBK Model as the preferred method for setting soil lead cleanup levels at CERCLA/RCRA sites, OSWER has decided to seek additional review of the model, beginning with the Science Advisory Board on November 7, and to evaluate its use at several types of sites. In the interim, the August 1991 memorandum directs that Headquarters be consulted before a Region uses the UBK Model as the basis for soil lead cleanup levels outside the 500-1,000 ppm recommended interim range.

In parallel with this recent guidance on the use of the UBK model, Regions should consult with Headquarters prior to using an ATSDR health consultation as the basis for selecting a soil lead cleanup level that falls outside EPA's recommended interim range of 500-1,000 ppm. This request for consultation applies both to removal and remedial sites. Headquarters consultation is needed in these situations because of the potential precedents set by using ATSDR findings as a basis for site-specific soil lead cleanup levels that fall outside of OSWER's recommended range (as published in Directive #9355.4-02) and because of the national significance of lead cleanups. The consultation should be with the OSWER Lead Technical Review Group. The Headquarters lead staff persons are Dr. Susan Griffin (FTS 260-9493) and Karen Tomimatsu (FTS 260-9861).

By definition, ATSDR health consultations are limited and situation-specific. ATSDR's findings and conclusions are based on review and analysis of individual circumstances specific to the site in question. They also are frequently prepared in response to time-critical situations, and therefore limited in scope and depth of analysis. Finally, ATSDR health consultations are not subject to EPA review and consensus-building and therefore may not always be consistent with published EPA policies and guidelines. For these reasons, the findings, conclusions, and recommendations of an ATSDR health consultation should not be considered national Superfund policy and should not be assumed to apply to sites other than the one for which it was developed.

DISCLAIMER

This document is intended solely as guidance. EPA decision-makers may act at variance with any of the recommendations contained in this document. These recommendations are not intended and cannot be relied upon to create any rights, substantive or procedural, enforceable by any party in litigation with the United States. These recommendations may change at any time without public notice.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

Please for to your Review. Linda

OFFICE OF
SOLID WASTE AND EMERGENCY RESPONSE

Please Distribute

SEP 1 1989

OSWER Directive #9355.4-02

MEMORANDUM

SUBJECT: Interim Guidance on Establishing Soil Lead Cleanup Levels at Superfund Sites.

FROM: Henry L. Longest II, Director
Office of Emergency and Remedial Response

Bruce Diamond, Director
Office of Waste Programs Enforcement

TO: Directors, Waste Management Division, Regions I, II, IV, V, VII and VIII
Director, Emergency and Remedial Response Division, Region II
Directors, Hazardous Waste Management Division, Regions III and VI
Director, Toxic Waste Management Division, Region IX
Director, Hazardous Waste Division, Region X

GOVERNMENT EXHIBIT 1

PURPOSE

The purpose of this directive is to set forth an interim soil cleanup level for total lead, at 500 to 1000 ppm, which the Office of Emergency and Remedial Response and the Office of Waste Programs Enforcement consider protective for direct contact at residential settings. This range is to be used at both Fund-lead and Enforcement-lead CERCLA sites. Further guidance will be developed after the Agency has developed a verified Cancer Potency Factor and/or a Reference Dose for lead.

BACKGROUND

Lead is commonly found at hazardous waste sites and is a contaminant of concern at approximately one-third of the sites on the National Priorities List (NPL). Applicable or relevant and appropriate requirements (ARARs) are available to provide cleanup levels for lead in air and water but not in soil. The current

National Ambient Air Quality Standard for lead is 1.5 ug/m^3. While the existing Maximum Contaminant Level (MCL) for lead is 50 ppb, the Agency has proposed lowering the MCL for lead to 10 ppb at the tap and to 5 ppb at the treatment plant[1]. A Maximum Contaminant Level Goal (MCLG) for lead of zero was proposed in 1988[2]. At the present time, there are no Agency-verified toxicological values (Reference Dose and Cancer Potency Factor, ie., slope factor), that can be used to perform a risk assessment and to develop protective soil cleanup levels for lead.

Efforts are underway by the Agency to develop a Cancer Potency Factor (CPF) and Reference Dose (RfD), (or similar approach), for lead. Recently, the Science Advisory Board strongly suggested that the Human Health Assessment Group (HHAG) of the Office of Research and Development (ORD) develop a CPF for lead, which was designated by the Agency as a B2 carcinogen in 1988. The HHAG is in the process of selecting studies to derive such a level. The level and documentation package will then be sent to the Agency's Carcinogen Risk Assessment Verification Exercise (CRAVE) workgroup for verification. It is expected that the documentation package will be sent to CRAVE by the end of 1989. The Office of Emergency and Remedial Response, the Office of Waste Programs Enforcement and other Agency programs are working with ORD in conjunction with the Office of Air Quality Planning and Standards (OAQPS) to develop an RfD, (or similar approach), for lead. The Office of Research and Development and OAQPS will develop a level to protect the most sensitive populations, namely young children and pregnant women, and submit a documentation package to the Reference Dose workgroup for verification. It is anticipated that the documentation package will be available for review by the fall of 1989.

IMPLEMENTATION

The following guidance is to be implemented for remedial actions until further guidance can be developed based on an Agency verified Cancer Potency Factor and/or Reference Dose for lead.

Guidance

This guidance adopts the recommendation contained in the 1985 Centers for Disease Control (CDC) statement on childhood lead poisoning[3] and is to be followed when the current or predicted land use is residential. The CDC recommendation states that "...lead in soil and dust appears to be responsible for blood levels in children increasing above background levels when the concentration in the soil or dust exceeds 500 to 1000 ppm". Site-specific conditions may warrant the use of soil cleanup levels below the 500 ppm level or somewhat above the 1000 ppm level. The administrative record should include background documents on the toxicology of lead and information related to site-specific conditions.

The range of 500 to 1000 ppm refers to levels for total lead, as measured by protocols developed by the Superfund Contract Laboratory Program. Issues have been raised concerning the role that the bioavailability of lead in various chemical forms and particle sizes should play in assessing the health risks posed by exposure to lead in soil. At this time, the Agency has not developed a position regarding the bioavailability issue and believes that additional information is needed to develop a position. This guidance may be revised as additional information becomes available regarding the bioavailability of lead in soil.

Blood-lead testing should not be used as the sole criterion for evaluating the need for long-term remedial action at sites that do not already have an extensive, long-term blood-lead data base[1].

EFFECTIVE DATE OF THIS GUIDANCE

This interim guidance shall take effect immediately. The guidance does not require that cleanup levels already entered into Records of Decisions, prior to this date, be revised to conform with this guidance.

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[1] In one case, a biokinetic uptake model developed by the Office of Air Quality Planning and Standards was used for a site-specific risk assessment. This approach was reviewed and approved by Headquarters for use at the site, based on the adequacy of data (due to continuing CDC studies conducted over many years). These data included all children's blood-lead levels collected over a period of several years, as well as family socio-economic status, dietary conditions, conditions of homes and extensive environmental lead data, also collected over several years. This amount of data allowed the Agency to use the model without a need for extensive default values. Use of the model thus allowed a more precise calculation of the level of cleanup needed to reduce risk to children based on the amount of contamination from all other sources, and the effect of contamination levels on blood-lead levels of children.

REFERENCES

1. 53 FR 31516, August 18, 1988.
2. 53 FR 31521, August 18, 1988.
3. Preventing Lead Poisoning in Young Children, January 1985, U.S. Department of Health and Human Services, Centers for Disease Control, 99-2230.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

AUG 29 1991

MEMORANDUM

SUBJECT: Update on OSWER Soil Lead Cleanup Guidance

FROM: Don R. Clay
Assistant Administrator
Solid Waste and Emergency Response

TO: Addressees

PURPOSE

This memorandum addresses the progress of the Office of Solid Waste and Emergency Response (OSWER) in updating the directive #9355.4-02 entitled "Interim Guidance on Establishing Soil Lead Cleanup Levels at Superfund Sites" (September 1989).

BACKGROUND

Currently, as set forth by OSWER directive #9355.4-02, EPA recommends an interim soil cleanup level of 500 - 1000 ppm total lead for CERCLA sites characterized as residential. This directive is being revised to:

1. Account for the contribution of various media to total lead exposure, and the variability of each medium's contribution with location and age of the exposed population, and

2. Provide a strong scientific basis for choosing a soil lead cleanup level for a specific CERCLA/RCRA site.

OSWER believes that the best available approach is to use the EPA Uptake Biokinetic (UBK) Model as a risk assessment tool to predict blood lead levels and aid the risk management decision on soil lead cleanup levels at CERCLA/RCRA sites which are characterized as residential.

OBJECTIVE

The EPA UBK Model, which was mentioned in OSWER directive #9355.4-02 as a tool for site-specific assessment of total lead exposure, will predict blood lead levels in the most sensitive

air, dust, drinking water, soil, and paint. The UBK Model:

1. Underwent Agency review in its use for the National Ambient Air Quality Standard (NAAQS);

2. Was used to support rulemaking for the Clean Air Act and the Safe Drinking Water Act;

3. Was adapted and reviewed for Superfund application;

4. Was validated at several Superfund sites; and

5. Has default parameters documented by the Office of Research and Development (ORD).

The UBK Model can be run with either site-specific data or its default parameters. Concern exists, however, over the use of the default parameters versus site-specific data for input to the model. OSWER has decided to address these concerns, as well as the appropriate method to use for collecting site specific data, before issuing a directive recommending the UBK model as the preferred method for setting lead cleanup levels at CERCLA/RCRA sites. To this end, the Science Advisory Board (SAB) has agreed to review the UBK model and its applicability for developing site-specific soil lead cleanup levels at CERCLA/RCRA sites. Also, a technical workgroup consisting of Regional, ORD, and OSWER scientists in consultation with outside experts is presently developing a "Site-specific Guidance Manual" which will provide guidance to site managers for determining why and when to collect site-specific data for the model. The guidance will include appropriate protocols and sampling strategies for collecting the site-specific data (e.g., soil, indoor/outdoor dust, paint, etc.) Once this guidance is complete, and the SAB issues have been resolved, EPA expects to release this guidance in conjunction with a revised OSWER directive recommending the UBK model as a risk assessment tool to develop soil lead cleanup levels at CERCLA/RCRA sites.

To assist in the implementation of this revised directive, once it is issued, the technical workgroup mentioned above will:

1. Review inputs and technical applications of the model, within 2 4 weeks of receipt, to aid site managers in the appropriate and consistent application of the model to individual site conditions;

2. Provide larification and assistance to the Regions in the use nd interpretation of the Site-specific Guidance Manual, uch as the type of data to use in the Model;

3. Provide cientific support for those cases which the workgrou has reviewed and found the use of the model to

be both appropriate and justified; and

4. Collect data pertaining to the use of the model and Regional site-specific information which will be used to refine and further validate the model.

Once the revised directive is issued, Headquarters has recommended that, whenever the UBK model is used to help determine cleanup levels for a site, the Regions should consult the workgroup on the parameters utilized in the model and the reasons for their selection.

DISCUSSION

We are aware that a number of Regions are already using the UBK Model to develop soil lead cleanup levels at their sites and that the current directive allows for deviations from the 500 - 1000 ppm range due to site-specific conditions. We recommend a model projection benchmark of either 95% of the sensitive population having blood lead levels below 10 ug/dl or a 95% probability of an individual having a blood lead level below 10 ug/dl. This recommendation is consistent with EPA's Agency-Wide Lead Strategy.[2] When the model is run using this benchmark, as well as each of the model's default parameters (i.e. no site-specific data is input), an acceptable soil level of approximately 500 ppm is predicted for lead. For those Regions which have used or are planning on using the model prior to release of the revised directive, and who have developed soil lead cleanup levels which fall outside the 500 - 1000 ppm range, Headquarters has requested that the Assistant Administrator of OSWER be consulted prior to implementation of those cleanup levels. The use of the UBK model in these situations is considered precedent-setting and, as such, a formal consultation with Headquarters is recommended as set forth in OSWER directive #9012.10-1 entitled "Clarification of Delegation of Authority" (April 1990). Headquarters should also be consulted on removal actions which use soil lead cleanup levels derived by the UBK model and which fall outside the 500 - 1000 ppm range. For further information please contact Susan Griffin of the Toxics Integration Branch at FTS 475-9493.

DISCLAIMER

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recommendations may change at any time without public notice.

REFERENCES

1. USEPA, 1990. Technical Support Document on Lead. Draft. Cincinnati, OH. Office of Health and Environmental Assessment, Office of Research and Development, U.S. Environmental Protection Agency. ECAO-CIN-757

2. USEPA, 1991. Strategy for Reducing Lead Exposure. Washington D.C., Office of Toxic Substances, U.S. Environmental Protection Agency. Available from the Toxic Substances Control Act Hotline (202) 554-1404.

Addressees:

Directors, Waste Management Division, Regions I, IV, V, VII, VIII
Director, Emergency and Remedial Response Division, Region II
Directors, Hazardous Waste Management Division, Regions III, VI, IX
Director, Hazardous Waste Division, Region X
Superfund Branch Chiefs, Regions I-X
Regional Counsels, Regions I-X

HHS NEWS

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

FOR IMMEDIATE RELEASE
Monday, Oct. 7, 1991

Contact: CDC Press Office
(404) 639-3286

HHS Secretary Louis W. Sullivan, M.D., today announced a new and lower "threshold of concern" for lead levels in children's blood. The new "threshold" represents lead levels in blood which should trigger various responses, or "levels of action," ranging from individual treatment or case-management to community prevention activities. The "threshold" also represents a new low blood lead level goal toward which the nation should now move for all children, especially through concerted community prevention activities, Secretary Sullivan said.

"New data have shown that blood lead levels which were previously believed to be safe are in fact associated with significant adverse effects," Secretary Sullivan said. "We have made considerable progress in lowering blood lead levels. But with these new findings, we owe it to our children to work together toward further improvement. We need to identify and treat youngsters with high blood lead levels, and we need to keep working in our communities to control childhood lead exposure."

The new threshold, included in a statement issued by the U.S. Centers for Disease Control, is placed at 10 micrograms per deciliter of whole blood (ug/dL) -- less than half the level of 25 identified by CDC in 1985.

087662

According to the CDC statement, "Preventing Lead Poisoning in Young Children," blood lead levels as low as 10 ug/dL can result in subtle effects such as developmental delays and reduced stature.

Secretary Sullivan said publication of the statement is "an important step in the implementation of our long-range strategy on lead exposure." The HHS Strategic Plan to Eliminate Childhood Lead Poisoning, describing public and private sector efforts, was released by the Secretary in February. It outlines the first five years of a projected 20-year effort.

Today's CDC statement provides guidelines on preventing and treating childhood lead poisoning for action by diverse groups, including public health officials, pediatricians, government agencies and private citizens.

It replaces the single, all-purpose definition of lead poisoning with "levels of action" at which different interventions should be triggered by specific levels of lead in the blood of exposed children, with highest priority given to children with the highest blood lead levels:

-- Children with blood lead levels of 20 micrograms or more should be medically evaluated and the source of lead exposure located and removed;

-- Children with blood levels of 15-19 micrograms should receive individual case management, including nutritional and educational interventions and more frequent screening. If the levels persist, environmental investigation (including a home inspection) is recommended, depending on availability of resources.

-- When many children in a community have levels of 10 or above, CDC recommends community-wide primary prevention activities.

No interventions directed toward the individual child are recommended for those with levels of 10-14, due to imprecision of laboratory measurements for levels this low, as well as lack of proven effective interventions in this range.

In addition to the threshold "triggers," the CDC statement recommends greater emphasis on preventing lead poisoning before it occurs. It also recommends that universal screening of young children be phased-in, except in communities where large numbers or percentages of children have been screened and found not to have lead poisoning.

However, the statement says, full implementation of universal screening cannot be accomplished immediately, since it "will require the ability to measure blood lead levels on capillary samples and the availability of cheaper and easier-to-use methods of blood lead measurement." Efforts are underway to develop "inexpensive, easy-to-use portable methods for measuring blood lead levels," the statement says.

"The CDC has presented our best understanding of the danger of lead exposure for children, and today's statement makes clear what our common goal must be," Secretary Sullivan said. "Now it is up to all of us to work together -- to treat children who are affected, and to reduce and prevent lead poisoning in the future.

"This statement will help all of us focus on that goal -- physicians, parents, and community leaders, as well as public officials at the state and federal level," Dr. Sullivan said.

Speaking for the Public Health Service, HHS Assistant Secretary for Health James O. Mason, M.D., said, "Lead poisoning is one of the most common pediatric health problems in the United States today, and it is entirely preventable. Three to four million children under age 6 in the United States have blood levels greater than 15 micrograms per deciliter. This is far greater than the number of children affected by other common childhood illnesses."

William L. Roper, M.D., director of the CDC, stressed that "the symptoms of lead poisoning are silent and largely invisible at first, leaving most cases undiagnosed and untreated. Yet this is a childhood health problem that can affect the physical and mental health of an individual for life." Without appropriate interventions, exposure to lead can cause learning disabilities, IQ deficits and neurobehavioral problems.

Efforts to prevent childhood lead poisoning have already "resulted in substantial progress in reducing blood lead levels in the entire U.S. population," the statement says. Efforts have included elimination of lead from gasoline, elimination of leaded solder in cans of food by most manufacturers, and elimination of lead additives to paints.

"Childhood lead poisoning prevention programs have had a tremendous impact on reducing the occurrence of lead poisoning. Because of these programs, deaths from lead poisoning and lead encephalopathy are now rare," the statement says. However, it adds, "Screening and medical treatment of poisoned children will remain critically important until the environmental sources most likely to poison children are eliminated."

Copies of the statement, "Preventing Lead Poisoning in Young Children," are available from Publication Activities, Office of the Director, National Center for Environmental Health and Injury Control, CDC, MS-F29, 1600 Clifton Road, Atlanta, Ga., 30333.

CDC is an agency of the U.S. Public Health Service, within the Department of Health and Human Services.

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

NOV 19 1990

OFFICE OF
SOLID WASTE AND EMERGENCY RESPONSE

MEMORANDUM

SUBJECT: Final Agency Lead(Pb) Strategy

FROM: Don R. Clay
Assistant Administrator

TO: Directors, Waste Management Division, Regions I, II, IV, V, VII, and VIII
Director, Emergency and Remedial Response Division, Region II
Directors, Hazardous Waste Management Division, Regions III, VI and IX
Director, Hazardous Waste Division, Region X
Directors, Environmental Services Division, Regions I, VI, and VII

Attached is the final Agency Lead Strategy, that has been developed at the request of the Deputy Administrator. The strategy was described in my memorandum of October 10, 1990, to Tom Voltaggio in Region III, with copies to the rest of the Regions, regarding the need for a public policy on lead remediation.

We will be working with your staff in implementing this strategy.

Attachment

087713

GOVERNMENT EXHIBIT 3

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OCT 9 1990

OFFICE OF
PESTICIDES AND TOXIC
SUBSTANCES

MEMORANDUM

SUBJECT: Final Agency Pb Strategy

FROM: Linda J. Fisher
Assistant Administrator (TS-788)

TO: F. Henry Habicht II
Deputy Administrator (A-101)

THRU: AX (A-101)

Attached is the final Agency Pb Strategy. The strategy has been extensively reviewed by other Offices over the past several months, and incorporates their comments. The document looks significantly different than it did when we briefed you on 9/7/90 because we made a number of organizational changes to enhance the document's clarity, based on helpful comments from other Offices.

Attachment

087714

U.S. ENVIRONMENTAL PROTECTION AGENCY

STRATEGY FOR

REDUCING LEAD EXPOSURES

October 3, 1990

U.S. ENVIRONMENTAL PROTECTION AGENCY
STRATEGY FOR
REDUCING LEAD EXPOSURES

TABLE OF CONTENTS

STATEMENT OF PROBLEM

HEALTH EFFECTS

Lead is a highly toxic heavy metal. It produces a spectrum of effects, both acute and chronic. Adverse effects include peripheral and central nervous system dysfunction, severe weight loss, anemia, and, in extreme cases, mental retardation and death. It has no beneficial biologic effect, and current data do not permit establishing a clear threshold for adverse effects.

Fetuses and young children are particularly susceptible to lead. Considerable data suggest a correlation between elevated blood lead (EBL) and delays in early neurological and physical development; cognitive and behavioral alterations; alterations in red blood cell metabolism and vitamin D synthesis; and kidney impairment.

Adults also face health risks. A positive association has been found in adult males between EBL and hypertension. Lead has also been associated with increased risk of cardiovascular disease. Since lead is stored in bone; it may be mobilized during periods of stress, during pregnancy, and among people suffering from osteoporosis. Lead exposures also may play a role in miscarriages and in damage to the male reproductive system.

Blood lead (PbB) is a surrogate for estimating recent exposure. There has been increasing concern about PbB at lower and lower levels over the past 15 years, as adverse effects have been identified at levels not previously recognized as harmful. The Centers for Disease Control (CDC) has repeatedly lowered the PbB level of concern, from 40 µg/dl in 1978 to 25 µg/dl currently, and anticipates lowering this level significantly in the near future. Levels of concern could go still lower as more is learned.

ENVIRONMENTAL EXPOSURES

As an element, lead is essentially indestructible, and due to millennia of use, is ubiquitous in the environment. However, there have been large reductions in ambient air lead (PbA) and food lead concentrations since the late 1970's, primarily due to the phase-down of the use of lead in gasoline. While no longitudinal or prospective data are available on soil lead (PbS), it is likely that reductions in soil deposition have occurred as air emissions declined. This, in conjunction with other factors, has dramatically lowered population PbB. While there has been no recent national survey of human PbB, it is estimated that mean PbB in U.S. children has declined by a factor of three or four, from about 15-20 µg/dl in 1976-80 to

approximately five μg/dl today. As the next table shows, there have been comparable declines in the estimated percent of U.S. children with EBL.[1]

TABLE 1:
Estimated Percentage of U.S. Children with EBL

PbB	1976-80 (percent)	1990 (percent)
>25 μg/dl	10.2	1.0
>10 μg/dl	91.0	15.0

As mean general population PbB declined to approximately one-half of EPA's de facto 10 μg/dl level of concern, the focus of attention has shifted from general population exposures to localized "hot spots". Given the continuing identification of adverse effects at lower PbB levels, however, EPA intends to continue efforts to lower general population exposures as well.

SOURCES OF LEAD

The three major sources of PbB above 10 μg/dl, in descending order of importance, are:

1. **Lead-based paint (LBP):** Most PbB levels in U.S. children above CDC's current level of concern (25 μg/dl) are due primarily to exposures to deteriorating LBP, causing very high PbB in relatively large populations. LBP is primarily the responsibility of the Department of Housing and Urban Development (HUD), with EPA and several other agencies providing technical support.

2. **Urban soil and dust:** These were contaminated in the past by mainly LBP and lead in gasoline. The extent and severity of exposures are not well characterized, but both are likely large.

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[1] The estimates in this and the following table were generated by program office staff, using the Agency for Toxic Substance and Disease Registry (ATSDR) report "Nature and Extent of Lead Poisoning in Children in the United States", 1988, and the most recent available information on lead occurrence in various exposure media.

3. **Drinking water:** Drinking water generally contributes moderate exposures to relatively large populations. Lead contamination is due mainly to lead solder joining water pipes in housing, the past use of lead service lines to connect homes to public water supplies, and the continuing use of lead in brass plumbing fixtures. Safe Drinking Water Act (SDWA) regulations now under development will gradually minimize exposures from these sources.

Thus, the major sources of EBL today largely are local exposures to high levels of lead previously deposited when lead was extensively used in gasoline and paint, and to previously installed lead and lead-soldered pipes conveying drinking water. The next table describes the extent of these exposures.

TABLE 2:
Estimated Number of Children Exposed to Lead Sources

		Number and percent with PbB >10 µg/dl	
	Total (000)	Number (000)	Percent
LBP, plus urban background	12,000	2,000	17
Urban soil/dust	12,000	?	?
Drinking water	30,000	700	2

The extent and severity of lead exposures from other sources is unclear. Although most EBL in the U.S. today is attributable to one or more of the above sources, there are some additional contributions from other sources that add to total lead body burden. These other sources may be comparatively easy to control. The sources include food and continuing auto emissions, as well as the following sources:

* **Stationary point sources:** Mainly smelters, which cause high PbB in relatively small and local populations. Exposures are due in part to current emissions, and in part to resuspension of dusts and soil contaminated by past emissions.

* **Sewage sludge disposal:** Primarily a problem if the sludge is incinerated.

* **Superfund National Priority List (NPL) sites:** Approximately 400 of these sites have lead identified as one of the major contaminants, and may have very high PbS levels.

* **Municipal waste combustors (MWC's):** Presently about 200, with many more planned or under construction.

* **Continued use of lead in products or for purposes that could result in high exposure:** For example, the use of lead solder to seal food cans or (illegally) to join pipes conveying drinking water; use in brass plumbing fixtures; use in products (such as paints and solder) used intensively by hobbyists or "do-it-yourselfer's"; use in industrial paints, and use in ceramic glazes and crystalware.

* **Mining sites:** Sites exist where significant residual mine wastes remain. Many of these sites have ongoing activities to remove or remill much of the existing mine waste.

EPA, recognizing the varied sources of lead and the multiple pathways of exposure which are possible, has developed this strategy document to limit lead contamination.

OVERVIEW OF STRATEGY

This section provides a summary of the goal, objectives, and major action elements of EPA's lead strategy.

GOAL

The goal of this strategy is to **reduce lead exposures to the fullest extent possible, with particular emphasis on reducing the risk to children.** This strategy document describes the extensive set of actions underway or planned within the EPA or other Federal agencies to reduce lead exposure.

OBJECTIVES

To achieve this broad goal, EPA has set the following two objectives as a way to gauge success in this program:

1. **Significantly reduce incidence of PbB above 10 µg/dl in children.**

This objective places EPA's priority on the highest exposures and on the most sensitive population. This target focuses attention on the approximate 15 percent of U.S. children with PbB above 10 µg/dl, and establishes a clear objective against which to measure progress. Subtle developmental effects have been discerned at this PbB level. The Clean Air Science Advisory Committee (CASAC) has recommended 10 µg/dl as the level below which EPA should seek to bring children, and EPA is therefore using this level as a target.

2. **Significantly reduce the amount of lead introduced into the environment.**

Discouraging further addition of lead into the environment is supported by three factors: first, adverse health effects continue to be found at lower and lower levels of PbB; second, current lead exposures are already above acceptable levels in many locations, and additions may worsen these already unacceptable exposures; and third, since lead is indestructible, lead newly introduced into the environment will always have the potential for human exposure and ecosystem damage. Pollution prevention, or finding innovative ways to decrease lead use rather than using "end-of-pipe" controls to limit emissions into a specific medium, plays an important role in achieving this objective.

The Administrator has stated a goal of reducing lead releases (along with releases from selected other chemicals) by a

third by October 1992, using voluntary means; and reducing lead releases by 50% by 1995. The Administrator intends that this goal be reached primarily through pollution prevention, using toxics use reduction as the preferred approach. This goal applies to reductions which go beyond any existing regulatory requirements.

MAJOR ACTION ELEMENTS

To achieve the above objectives, EPA activities will proceed along several basic lines of action:

Develop Methods to Identify Geographic "Hot Spots": Identifying specific high exposure areas is critical to encouraging and directing the actual abatement actions. A major element of the lead strategy is to develop technical methods to assist other Federal agencies, and State and local governments, as they locate and map the regions, cities, neighborhoods and homes with high lead concentrations or EBL's. EPA will work with these other agencies to develop methods to identify high exposure localities and situations.

Develop and Transfer Abatement Technology: Developing and disseminating methods and tools to abate "in-place" lead exposure sources is crucial to ensure the use of safe, effective and cost-efficient methods. This is important because (1) significant reductions in lead exposures entail abatement; and (2) most actual abatement operations will be conducted at the State and local level, not by EPA. However, EPA is well-suited to develop and disseminate technical assistance to assist these efforts.

Implement Lead Pollution Prevention Program: While the major tasks in reducing risks from lead are to abate or control lead that is already deposited in the environment, the lead pollution prevention program will prevent future exposures by reducing lead production and consumption. This program will include:

- exploring market-based incentives to limit or eliminate lead use;
- using regulatory mechanisms (such as the Toxic Substances Control Act (TSCA)) to reduce the use of lead in current and future products; and
- identifying and encouraging cleaner technologies for mining, smelting and processing lead.

Minimize Lead Pollution through Traditional Control Mechanisms: This activity includes controlling lead contamination in water, air, and other media primarily through "end-of-pipe" regulatory approaches.

Ensure the Availability of Environmentally Sound Recycling: This activity is unique in that it highlights the inherent conflicts which are possible as individual offices strive to minimize lead emissions to their particular media. In order to reduce lead entering the environment, and to provide safe disposition of spent lead products, environmentally sound recycling capacity must be available. Activities recently completed or under consideration by a number of offices (see following sections) may have a significant impact on recycling capacity. For this reason, these activities will be coordinated, orchestrated and sequenced in order to achieve significant net reductions in human exposure and environmental loading.

COORDINATION

In pursuing these objectives, risk reduction and research efforts will be integrated across program offices and environmental media. EPA will also coordinate its work with that of CDC, HUD, the Consumer Product Safety Commission (CPSC), OSHA, and the National Institute of Standards and Technology (NIST). This effort is particularly important since lead is a multi-media pollutant (in many areas, EBL's are attributable to more than one route of exposure), and since the impending regulations to deal with these exposures are highly interdependent. The EPA Office Director Lead Committee (ODLC) is responsible for ensuring this coordination. The ODLC will monitor and report on lead-related activities to the Deputy Administrator on a continuing basis.

Specific Agency lead-related activities recently completed, underway or planned are described in the following sections. The activities are displayed graphically in the "Schedule of Activities" on the final page of this strategy.

RESEARCH PROGRAM

Background

A focused research program is critical not only to developing sound regulations, but also to inform other Federal agencies and State and local governments on matters relating to abatement.

EPA will, in conjunction with CDC, HUD, and the Department of Commerce (through NIST), define, encourage and conduct the research needed by all governmental entities to (1) locate and assess, in terms of both geography and media, the most serious lead risks; and (2) develop methods and tools to reduce those risks. In this way, EPA can act as both a catalyst and an information resource to local abatement efforts.

Needs

While the toxicity of lead is well understood, additional information is needed on certain aspects of exposure, including location, intensity, extent, accessibility, and bioavailability. In particular, the following efforts are needed:

- development of methods for identifying and mapping specific localities, neighborhoods and homes with high lead exposures from paint, soil, water and other sources (geographic "hot spots");

- determination of the relative contributions of these sources to EBL and environmental lead loading;

- development and evaluation of effective abatement tools and methods;

- identification and evaluation of cleaner technologies for mining, smelting, processing and disposing of lead.

These research needs will be mentioned again as appropriate in the discussions of the various lead exposure pathways.

Planned/Recommended Actions

The ODLC will establish an inter-office Lead Research Sub-Committee, with representation from the Office of Research and Development (ORD), the Office of Policy, Planning, and Evaluation (OPPE), and the program offices, to define and rank EPA lead research program objectives and activities. Particular emphasis will be placed upon the efforts listed above.

The Lead Research Sub-Committee will report back to the ODLC at least annually, with a prioritized list of research

objectives. Upon concurrence, the ODLC will in turn include this list in their periodic reports to the Deputy Administrator.

EPA's research program will also be coordinated with the research activities of other government entities, including CDC and HUD, through periodic meetings. Development of the methods for identifying and mapping geographic "hot spots", for example, must involve CDC, HUD, public drinking water suppliers, and State and local governments.

ABATEMENT PROGRAM FOR "IN-PLACE" LEAD

LBP EXPOSURES

Background

LBP is the most serious source of children's exposure. The ATSDR estimates that 12 million children are exposed to lead-painted homes, and that almost six million are exposed to the highest concentrations, in homes built before 1940.

In 1971, under the Lead-Based Paint Poisoning Prevention Act (LBPPPA), HUD began restricting FHA mortgages for new dwellings to those with paint that did not contain more than one percent lead. In 1973, amendments to the LBPPPA reduced this level to 0.5 percent, and designated HUD as the lead Federal agency to eliminate the hazard of LBP in housing.

In 1987, Congress enacted the Housing and Community Development Act, requiring HUD to submit a "Comprehensive and Workable Plan" for addressing lead. The plan, expected by October 1990, may include a substantial support role for EPA.

In 1988, Congress directed EPA and HUD to effect a Memorandum of Understanding (MOU), under which EPA would provide technical and program development support to HUD. EPA and HUD signed the MOU in April of 1989, identifying the following areas of technical and managerial assistance:

- accreditation of abatement personnel,
- establishment of training and information centers,
- intergovernmental relations,
- identification of gaps in existing technical standards,
- new technical standard-setting, and
- public outreach and education.

EPA's current work is in two major areas:

- assistance in developing information on deciding how to run an abatement program, and

- program assistance to help HUD and public housing personnel administer the program, and ensure that contractor/designer personnel do their work well.

EPA's Office of Toxic Substances (OTS) has met with lead industry representatives, and these meetings may lead to a joint industry-Government research program in the area of LBP abatement (e.g., testing PbB).

CDC has historically directed the targeted lead screening program that identified lead-poisoned children, and has long advocated intervention to lower EBL in children resulting from LBP. Recently, the Assistant Secretary for Health asked CDC to design a program to eliminate the childhood lead problem, including abating lead paint in deteriorated housing. EPA provided assistance to CDC in performing a detailed cost/benefit analysis of the program. CDC is expected to further lower the PbB level of concern from 25 μg/dl, significantly increasing the number of children above the action level.

Other agencies also play a role in LBP abatement-related programs. In 1978, the CPSC limited all residential paint to 0.06 percent lead. OSHA has been requested by HUD to reassess the abatement worker protection issue. NIST is currently under contract to HUD on a number of research issues related to measurement techniques and procedures for lead in paint-films and dust.

LBP accounts for the largest single share of EBL. The LBP problem is both large and complex; the magnitude of these exposures adds to the difficulty and expense involved in finding and implementing solutions. This is exacerbated because while EPA and other Federal agencies can plan and otherwise assist activities, these agencies are not equipped to perform most actual abatement work. This field work will likely be performed by State and local governments.

Needs

It is essential to achieving this strategy's objectives that exposure to LBP be significantly reduced. There is a clear need to coordinate the various strategic plans being developed within EPA, HUD and CDC for dealing with LBP. State and local governments must also become involved. Given the magnitude of the problem, these jurisdictions will conduct most of the actual abatement work.

Guidance is needed on acceptable lead levels in dust resulting from LBP to enable programs to set goals to reduce these exposures. The relative contribution to dust from LBP and soil needs to be established; and improved measurement methods for soil, paint and dust need to be developed to reduce abatement costs. More cost-effective LBP abatement and management approaches have to be developed.

Responsibilities fall into three broad categories: direct abatement; technical support and research; and operational support. Abatement involves planning and implementing abatement projects; technical support and research involves providing consultation and information; and operational support involves managing the infrastructure needed to support abatement programs.

Examples of the third category include PbB screening, training and lab accreditation programs.

Planned/Recommended Actions

HUD will maintain responsibility for abatement programs as stipulated in the LBPPPA, and State and local governments should maintain or assume responsibility for abatement operations. The infrastructure programs will also be handled by either HUD or associated agencies. In some cases (e.g., lab accreditation programs and development of standard reference materials), these may continue to be performed by NIST under contract to HUD.

In EPA, both OTS and ORD will be involved in providing technical support to HUD. EPA will use its technical facilities and expertise to address research and technical questions on exposure and analytical methods. EPA will also establish "acceptable levels" of lead in various media. In its research and technical support functions, EPA will assist in establishing support programs, but the operation of these programs should reside more closely to ongoing abatement efforts.

A Lead-based Paint Task Force, made up of EPA, HUD, CDC, NIST, and other Federal agencies, has been resolving these important research areas by identifying and developing initiatives to reduce exposures to in-place lead. A supplemental Congressional appropriation provided resources for these initiatives. OTS is funding the following specific initiatives:

- Completion of two role-specific training courses (for inspectors and abatement supervisors); start of work on the remaining two courses;

- Establishment of at least one training center, which will aid in the dissemination of training throughout the country (separate from initiating an accreditation program);

- Development of a risk communication strategy;

- Study of repair and maintenance activities (management in place);

- Study of the long-term effectiveness of abatement;

- Preparation of the Report to Congress on debris;

- Continuation of support to HUD on the Guidelines and the Comprehensive Workable Plan;

- Completion of the University of Massachusetts' ongoing encapsulation study;

- Initiation of test kit work (with NIST and ORD); and

- Initiation of a laboratory accreditation program (with NIST and ORD).

EPA will actively continue to pursue integrated strategic planning with both CDC and HUD. EPA will serve as the focal point and overall manager of technical support to HUD, but will coordinate closely with NIST. CDC will play a similar role with respect to medical issues.

URBAN SOIL

Background

Lead-contaminated urban soil -- soil contaminated by (1) non-industrial sources of lead such as paint, gasoline and household wastes (e.g., used oil); and (2) industrial sources, (e.g., battery recycling sites, mining and milling sites, and smelters) -- might contribute as much as 30 percent of exposures leading to EBL in children. Next to LBP, urban soil and dust are likely the most important source of lead exposure for children in urban residential areas. There are perhaps 12 million children exposed to high PbS levels. These exposures are often related to exposures from LBP -- with the paint breaking down to contaminate the soil, and the soil being tracked into residences.

Although EPA's Office of Emergency and Remedial Response (OERR) currently has a number of programs underway to address soil, the focus is primarily upon soil contaminated by industrial sources. An exception to this is OERR's Three City Study. Under Section 111(b)(6) of the Superfund Amendments and Reauthorization Act (SARA), the Office of Solid Waste and Emergency Response (OSWER), with advice from CDC, USDA and others, is conducting a $15 million pilot program in Boston, Baltimore and Cincinnati to evaluate the impact of removal of lead-contaminated soil and dust on children's PbB.

Boston was selected in 1987, based on evidence of high PbS attributable to paint, and high EBL's in children. Baltimore and Cincinnati were selected in 1988. The studies use widely available (low technology) means of removing lead-contaminated soil and dust.

The study has three components:

- pre-abatement monitoring for PbB and environmental lead (i.e., soil, dust, water, paint and hand dust);
- abatement of soil and dust contaminated with lead; and
- post-abatement monitoring.

All three cities have completed pre-abatement monitoring and are in the process of abatement. The study will be completed by the end of 1991.

Needs

Although believed to be one of the two most serious sources of lead exposure, far less is known about urban soil than about either paint or drinking water. Data are limited on the location and severity of the problem, on the extent to which abatement is required, and on the best procedures for achieving abatement. More information is needed to better characterize the problem; to determine the extent and rate of dissipation of bioaccessibility of soil lead, and to determine effective remediation methods.

Planned/Recommended Actions

EPA's Office of Solid Waste and Emergency Response (OSWER) is responsible for actions involving lead abatement at NPL sites. Given the current lack of knowledge regarding urban soil, priority will be given to develop information about the problem and on methods of remediation. EPA will seek to establish a joint effort with HUD, CDC and ATSDR to promote and assist a national effort to identify the locations, extent, bioavailability and severity of lead-contaminated soil. Additional research will be undertaken to assess the impact of soil abatement on children's PbB, and to identify the most effective methods of abatement.

SUPERFUND SITES

In 1988, ATSDR published its report on lead poisoning in children, as required by SARA §118(f). In June 1990, ATSDR published a toxicological profile for lead, as directed by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) §104(i)(2).

More than 400 NPL sites have lead designated as a major contaminant or as a contaminant of concern in one or more media. These may include battery manufacturing or recycling sites, and mining and milling sites. The mining and milling sites, or residuals left by these activities, can involve large volumes and surface area, and can affect children, adjacent residents, and workers. The extent to which this contamination has contributed to EBL in the surrounding populations is unknown. PbB levels are not routinely measured at Superfund sites.

PbS levels are routinely measured at Superfund sites. At some mining sites, these levels have exceeded 10,000 ppm lead. OERR issued interim guidance last year indicating that lead soil

levels at Superfund sites should be cleaned up to levels of 500 to 1000 ppm.

OSWER is working with ORD to provide methods for determining site-specific PbS standards. One of the methods being developed is a biokinetic uptake model for lead.

In June 1990, OERR recommended a cleanup level of 15 ppb for lead in groundwater near Superfund sites if that water is usable for drinking water. This cleanup level, to be used until the lead Maximum Contaminant Level (MCL) rule is promulgated, is based upon analyses generated by the Office of Drinking Water (ODW) in developing the drinking water regulations using a 10 µg/dl PbB criterion.

Finally, an adjusted reportable quantity for lead will be completed in 1990. This will extend CERCLA §102(b) requirements for notification of release of hazardous substances to lead.

CONTROL PROGRAM TO MINIMIZE NEW/ONGOING LEAD EMISSIONS

EBL today is largely due to exposures to "in-place" lead previously deposited. Therefore, the highest public health priority is to abate exposures to this "in-place" lead -- with particular emphasis on LBP and lead-contaminated urban soil.

There are, however, some continuing sources of new lead -- particularly lead smelters and drinking water -- that warrant attention by EPA. These exposures, in contrast to those from "in-place" lead, are amenable to regulatory control. While EPA has limited regulatory authority to address "in-place" lead, it has ample authority under several statutes to restrict current and future consumption of lead which would otherwise add to new exposures or to environmental loading. This may include both traditional emission control restrictions as well as pollution prevention measures that could, for example, result in the use of new smelting technologies to reduce the amount of lead waste generated. In addition, EPA may take pollution prevention measures to reduce the amount of lead in products.

This section summarizes the roles of the various EPA Offices in controlling new or ongoing lead pollution. It is important to note that the activities summarized here, while significant and important in reducing lead contamination in the environment, are not sufficient in themselves to adequately address the goals of this strategy. Again, that is dependent upon significantly reducing risks due to LBP and urban soil.

OFFICE OF DRINKING WATER (ODW)

Background

Lead occurs in drinking water primarily due to corrosion of lead-bearing materials in water supply distribution systems (e.g., service lines, goosenecks, water meters) and in household plumbing (e.g., lead-soldered copper pipes, brass faucets, and brass fixtures). The highest levels are found in areas with corrosive waters, especially in older urban areas with lead service lines and mains, in homes with newly-installed lead solder (though now illegal) and brass faucets, and in buildings with drinking water coolers containing lead-lined tanks. Everyone is exposed to lead in drinking water (PbW) at some level. Concentrations vary widely from city to city, house to house, and even at the same tap depending on standing time of the water and temperature. There are very few data to make reliable nationwide projections of current exposure. In 1986, EPA estimated that approximately 20 percent of the population was exposed to lead levels over 20 ppb in first-flush water. These data are being used to estimate baseline risks as part of the

current reviews of the drinking water regulation and the lead National Ambient Air Quality Standard (NAAQS).

Assuming the highest PbB:PbW relationships available in the literature, steady exposure to 20 ppb in drinking water would contribute between 2.5-3.5 µg/dl to a child's PbB. However, even assuming upper bound estimates of lead concentrations, drinking water actually contributes a much smaller amount for most of the population, in part because few people have steady exposure to first-flush water. On average, this is estimated at between one and two µg/dl, or between 20 and 40 percent of total mean PbB.

EPA currently estimates that among U.S. children not living in deteriorating lead-painted housing, and not exposed to highly contaminated soils, approximately 2 percent have PbB above 10 µg/dl. If lead in drinking water could be completely eliminated, the percentage of children with PbB above 10 µg/dl would be reduced to 1.4 percent, although this shift would be relatively small -- from about 11 to 9 µg/dl on average.

Final Drinking Water Regulations

In 1988, EPA proposed revisions to the National Primary Drinking Water Regulation for lead under the SDWA. The major provisions of the proposal were for water suppliers to monitor lead levels in first-flush, standing water in high-risk homes, and to install and improve corrosion control and conduct public education if lead levels were above various targets. The current standard is a MCL of 50 ppb measured at free-flowing taps located throughout the distribution system. ODW will likely recommend reducing this 50 ppb MCL to a 15 ppb first flush "Action Level" at the tap. Corrosion control, public education, and possibly lead service line replacement will be required if the 15 ppb "Action Level" is exceeded at the 90th percentile. EPA is considering requiring all large systems to install or improve corrosion control for lead without jeopardizing overall water quality.

ODW estimates that the final rule will result in the average PbB among children not exposed to paint or soil contamination hazards dropping from 5.3 to approximately 4.6 µg/dl.

Implementation

The SDWA requires drinking water regulations to be technologically and economically feasible. While corrosion control and lead service line replacement meet those criteria, it is impossible to predict the precise effectiveness of these treatments in reducing lead levels at household taps. ODW estimates that even after corrosion control, at least 17,000 of the 66,000 public water systems would exceed a 90th percentile level of 10 ppb.

The final regulation will account for the limits of available technology by: 1) allowing systems that fail the target tap lead level to be considered in compliance if they demonstrate they have done everything under their control to minimize lead levels (corrosion control and lead service line replacement); and 2) requiring systems that exceed the target tap lead level to regularly inform customers of easy ways that exposures from household plumbing can be minimized (e.g., not drinking first flush water after long standing times, checking for lead solder and pipes). ODW conducted a pilot public education program in Raleigh, North Carolina, that resulted in behavior changes to reduce lead exposures. Materials developed from this pilot study will be applied in the final rulemaking. ODW is developing brochures and other communication materials for use by water suppliers.

Finally, ODW will use university-based centers to train water suppliers, engineers, and regulators on practical ways to minimize water corrosivity and reduce lead levels in drinking water. This effort is being conducted in cooperation with national corrosion control experts and large metropolitan water suppliers.

Planned Actions

Several ongoing efforts are significantly reducing exposures to lead in drinking water. The 1986 Amendments to the SDWA banned the use of lead solder from public water supply systems, and from plumbing in residential or non-residential facilities connected to a public water system. The use of pipes or faucets containing more than eight percent lead was also banned. Given that much of the lead contamination comes from water standing in faucets and in interior plumbing, effective implementation of this ban is a high ODW priority. Although States have authority to enforce the ban, ODW has used a combination of regulatory and non-regulatory strategies to assist States and localities, including guidance and training for Regions and States, an aggressive outreach program to educate consumers, and technical assistance to manufacturers of plumbing fixtures. OTS, in conjunction with ODW and industry, is now considering using TSCA §6(a) to ban the sale of lead solder to plumbers and plumbing supply houses, to further ensure compliance.

The Lead Contamination Control Act (LCCA) of 1988 mandated recall of drinking water coolers with lead-lined water reservoir tanks, and banned the manufacture or sale of drinking water coolers with lead parts. ODW has developed a program to help schools correct lead contamination problems. This includes (1) distribution of a guidance document and testing protocol to monitor for and remedy excessive lead levels in drinking water; (2) conducting training on how to follow the necessary

procedures; (3) production of a training video; (4) publication of lists of brands and models of water coolers containing lead; and (5) publication of certified analytical laboratories. ODW has also established a Safe Drinking Water Hotline to provide information on the LCCA, the lead ban, and other aspects of lead in drinking water.

OFFICE OF WATER REGULATIONS AND STANDARDS (OWRS)

Clean Water Act

EPA estimates that sewage sludge contributes less than 0.05 percent to total high hazard lead exposures, and virtually all of this occurs with incineration of sludge.

Section §405(d) of the Clean Water Act (CWA) requires EPA to propose and promulgate regulations establishing numeric limits and management practices regarding sludge that are adequate to protect public health and the environment from any reasonably anticipated adverse effects of each pollutant. Currently, EPA (40 CFR Part 257) regulates the disposal of sewage sludge from publicly and privately owned treatment works.

Because Part 257 covers only a limited number of pollutants and use and disposal practices (land application and landfilling) EPA is developing more comprehensive regulations under 40 CFR Parts 501 and 503. These regulations are expected to reduce the number of children with PbB over 10 µg/dl (as a result of exposure to sludge) by 360, from 414 to 54. OWRS is constructing the final Part 503 rule to establish reasonable worst case protective limits for lead-bearing sludge, to avoid treating it as a "special case" requiring extraordinary treatment. OWRS believes that there is minimal risk from lead in sludge applied to land, and that tight restrictions on land application of lead-bearing sludge could force transfer to incineration, where exposures and risks are significantly greater. Furthermore, stringent lead limitations may not reduce lead concentrations in sludge because sources may be beyond the control of the POTW.

OFFICE OF SOLID WASTE (OSW)

Resource Conservation and Recovery Act (RCRA)

Land Ban

In response to the 1984 Hazardous and Solid Waste Amendments to RCRA, OSW promulgated the "Third third" rule in June 1990, specifying treatment standards -- expressed as Best Demonstrated Available Technology (BDAT) -- for certain materials, including lead, destined for land disposal. Earlier land ban regulations

have also established treatment standards for lead in listed wastes. Land disposal includes any placement of hazardous waste in a landfill, surface impoundment, waste pile, injection well, or several other scenarios. This rule may place more stringent requirements on temporary storage of spent batteries pending recycling. While BDAT for batteries is recovery of the lead, OSW is debating whether certain storage areas for lead-containing products awaiting recycling are considered wastepiles. Under the land ban, existing wastepiles must be replaced with tanks or other appropriate technology. OSW has granted a two-year capacity variance for these storage areas pending a final decision on this issue. A decision to treat smelter storage areas as wastepiles could contribute to a reduction in recycling capacity, if smelters close rather than meet the new requirements. This is discussed in more detail under the section on battery recycling towards the end of this document.

Toxic Characteristic Leaching Procedure (TCLP)

OSW published a final rule in March 1990, under Subtitle C of RCRA, replacing the Extraction Procedure (EP) leach test with the TCLP. Under the EP, if a waste was a solid, homogeneous material, a sample of the waste could be tested using the structural integrity procedure (SIP), and did not have to be ground to pass through a 9.5 mm sieve the way all other wastes did. The TCLP no longer allows the use of the SIP for any wastes, although alternatives to the grinding requirement are being evaluated.

In addition, the final rule has a regulatory limit of 5 ppm for lead in the TCLP leachate; this limit is based on the current MCL of 50 ppb. If the MCL is modified, OSW will evaluate whether to change the regulatory limit, although such a change is not automatic. Both of these actions could cause additional secondary smelter slag to be considered hazardous waste, although other modifications to the standard setting procedure now under consideration could offset the effect of the MCL change.

If additional slag is now characterized as hazardous waste, more secondary smelters will be required to comply with Subtitle C requirements. If, for example, a smelter is disposing of hazardous slag at its own on-site landfill, then the smelter will have to comply with Subtitle C hazardous waste management requirements, including corrective action for all solid waste management units at the facility. The costs of coping with hazardous waste may cause some secondary smelters simply to close.

Source Separation

The Municipal Solid Waste (MSW) Program within OSW is currently developing a proposed regulation that would require

source separation of MSW before landfilling to encourage increased source reduction and recycling. One option under consideration is to ban batteries from landfills (as many States currently do), thus driving more batteries to recycling. This will be coordinated with the Office of Air Quality Planning and Standards (OAQPS) proposal requiring batteries to be separated from waste prior to incineration; however, the OAQPS rule will likely be finalized before this rule is proposed.

OSW will also develop and distribute information on the proper implementation of lead-acid battery recycling.

OFFICE OF PESTICIDE PROGRAMS (OPP)

The last known use of lead as a pesticide active ingredient (lead arsenate for use on grapefruit) was voluntarily cancelled in 1989, generally due to concerns about the arsenate. EPA is currently revoking the associated tolerance levels.

OPP found lead as an inert ingredient in 13 pesticide products. As a result of this discovery, OPP issued data call-in notices to all of the registrants of these products. Out of the 13 products, 11 have been canceled, one has been reformulated without lead, and one is pending cancellation, since the registrant has not responded to OPP's request.

OPP believes these actions have removed lead from pesticide products. There is, however, one possible area for additional action, and that involves active ingredients registered before 1984. OPP is undertaking a review of pesticides registered prior to 1984, in order to discover if any contain lead as an active ingredient. If OPP finds lead as an active ingredient, it will initiate appropriate regulatory action.

OFFICE OF TOXIC SUBSTANCES (OTS)

Background

OTS is concerned that all current uses of lead -- irrespective of current exposures -- may eventually lead to exposures of concern. Therefore, OTS intends to discourage all uses insofar as feasible.

Given the toxicity and indestructibility of lead, OTS will proceed on the assumption that there are no effective permanent sinks for discarded lead which will protect future generations from exposure. However, OTS will allow industry an opportunity to demonstrate that lead discarded today will not result in exposures to humans in the future. Regulatory investigations described in this strategy, designed to discourage consumption of

lead in general, will be based upon this "rebuttable presumption" that current lead use will lead to future lead exposure.

Toxic Substances Control Act (TSCA)

TSCA Lead Pollution Prevention Plan

The use of lead in products presents two types of exposures: (1) exposures that occur from specific lead products during or immediately following production or use; and (2) potential exposures that might occur from any lead-bearing product at some time in the future after disposal.

OTS has two regulatory objectives with respect to each type of exposure. Regarding products that generate exposures during production or use, OTS intends to:

- prevent new uses of lead which may present an unreasonable risk of injury to human health or the environment, and
- limit or, if appropriate ban current uses of lead in specific types or classes of products which present an unreasonable risk of injury to human health or the environment during application or use.

Regarding products generally, all of which pose potential exposure risks at some time after disposal, OTS plans to:

- place the responsibility and costs of disposal or recycling on the appropriate manufacturing industry, (eg. lead acid storage batteries), and
- explore the desirability and feasibility of discouraging overall consumption of lead in general.

All four of the above objectives lend themselves not only to traditional pollution control rules, but also to pollution prevention efforts to reduce the amount of lead generated (including imported lead), including economic incentive or market-based approaches. OTS will examine both benefits and costs of each of the four objectives stated above, including an analysis of materials which would be substituted for lead in specific products. OPPE is working closely with OTS to evaluate these alternative approaches.

Prevention of hazardous or unnecessary new uses of lead

While new lead uses continue to be developed, they are not subject to EPA scrutiny prior to commercial production. OTS is exploring a TSCA §5(a)(2) Significant New Use Rule (SNUR) for lead, which would require 90 days advance notice from anyone intending to manufacture or process lead for a new use. This

would afford EPA an opportunity to review the intended new use and, if appropriate, to either limit or ban it.

Phase-out of "high exposure" uses of lead

Several continuing uses of lead that generate risk during use may, upon examination be found to cause unreasonable risk under TSCA §6(a). Such uses would be candidates for bans or restrictions under several Federal statutory authorities, including TSCA. Uses under consideration for a ban or restriction include:

- brass plumbing fixtures,
- lead solder used to join pipes carrying drinking water,
- lead solder used by hobbyists,
- lead solder used in car radiators,
- lead in colored printing inks, and
- lead in non-residential paint.

Battery recycling

Recycling lead acid storage batteries is critical because of the sheer volume of lead involved. In 1989, 1,012,155 metric tons of lead, approximately 80 percent of total domestic consumption, went into batteries. The amount of lead involved makes battery recycling important, both to reduce the amount of lead discarded in the environment, and to minimize the amount of virgin lead that must be brought out of the ground.

Somewhere between 80 to 95 percent of spent batteries are currently recycled; however, lead-acid batteries still comprised 65% of all lead in municipal solid waste in 1988. It is clearly desirable to move the recycling rate as close to a 100% as possible. A greater concern, however, is that if the price of lead again falls, the market may not support even the current recycling rate. OTS is considering a rule to require battery manufacturers to recover, in spent batteries, some specified fraction of the total amount of lead they need to produce new batteries. This would (1) internalize the cost of recovering spent batteries within the battery manufacturing industry; (2) instill in battery manufacturers a "cradle-to-grave" proprietary interest in the lead content of their batteries, and (3) allow industry to develop the most efficient and cost-effective means of recovering batteries. This rule is particularly amenable to a market based approach, and this option is being jointly explored by OPPE and OTS.

Discouragement of overall consumption of lead

If all new lead mined or introduced into commerce may result in actual current or future human exposure, then prudent public

policy would reduce, insofar as feasible, the amount of lead mined or consumed. OTS plans to publish an Advance Notice of Proposed Rulemaking (ANPR) under TSCA soliciting comment upon the overall lead regulatory program, and the following "rebuttable presumptions" that would justify an "across-the-board" effort to reduce general consumption of lead.

* Most lead uses result in some human exposure.

* There is a relationship between the amount of lead mined and introduced into commerce, and current and future human exposures.

* There are no effective sinks for most discarded lead.

* Under current usage patterns, lead would continue build up higher and higher PbB levels.

The ANPR will set forth the rationale for such an "environmental loading" theory of lead risk, and will be followed by an Notice of Proposed Rulemaking (NPRM) with proposed regulatory remedies. If the assumptions are found to be sound, a variety of TSCA §6(a) rules are possible, including rules that would restrict production of virgin lead, or restrict general consumption of all lead.

Final risk management decisions regarding the entire TSCA lead regulatory program will be made after consideration of comments received on the ANPR, and evaluation of the economic incentives analysis.

OFFICE OF AIR QUALITY PLANNING AND STANDARDS (OAQPS)

Background

The current lead NAAQS was set in 1978 at 1.5 $\mu g/m^3$, quarterly average. EPA's primary mechanism for attaining the NAAQS has been the reduction of lead in gasoline. In addition, lead emissions from industrial sources have been substantially reduced by State Implementation Plans (SIP's) designed to attain the particulate matter and lead NAAQS. Further reductions have also resulted from the New Source Performance Standard (NSPS) program's regulation for smelters. In combination, these control programs have resulted in major reductions in PbA and in children's PbB. Available data indicate that the lead NAAQS is being attained in all areas except those near lead smelters, refineries and remelters. In these areas, exposures are due both to current emissions and to resuspension of soil contaminated by past emissions. OAQPS has developed a compliance strategy to bring these areas into attainment.

Strategy for achieving attainment of the current lead NAAQS

Twenty-nine sources (four primary smelters, 23 secondary smelters, one lead refinery and one lead remelter) have been identified under OAR's attainment strategy. Monitoring data from the sources with monitors indicate that 10 of the 11 do not attain the current NAAQS. Fifteen other smelters had modelled violations.

Non-attainment is due either to non-compliance with SIP emission limits, or to insufficient SIP emission limits which would not result in attainment of the NAAQS even with full compliance. Bringing an area into attainment with the NAAQS typically involves three steps: (a) monitoring air quality, (b) developing control plans (SIP requirements), and (c) enforcing those regulations. However, in developing SIP requirements, a series of estimates must be made to determine the emission reduction needed to attain the NAAQS. Because of uncertainties in such estimates, some areas might not attain the NAAQS even when all sources in the areas are in compliance with their SIP requirements. When this occurs, EPA can initiate a SIP revision.

Because the 42 facilities in the OAQPS Extended Exposure Analysis only affect their immediate vicinity, the number of children at risk is small compared to the number of children at risk from LBP, contaminated urban soil or drinking water. However, non-attainment of the NAAQS adds significantly to the PbB level of these children. OAQPS estimates that the number of children near these facilities with PbB greater than 10 $\mu g/dl$ would be reduced about 50 percent, from approximately 800 to 400, if the current NAAQS was attained in all areas of the country.

OAQPS's lead NAAQS attainment strategy, approved by the Deputy Administrator, contains four activities:

1. Expand monitoring to all 29 large lead sources;

   An expanded ambient monitoring initiative is underway to provide the necessary ambient monitoring data base near stationary lead sources. Ambient monitoring networks will be initiated near each of the sources, and initial ambient air data analyses should be complete by June 30, 1991.

2. Conduct Federal inspections of all 29 sources;

   In mid-1990, OAQPS asked the Regions to inspect each of the 29 sources by December 31, 1990.

3. Implement "leveraged enforcement" by coordinating with other program offices (multi-media approach); and

OAQPS has asked the Regions to develop enforcement actions by January 31, 1991; negotiate multi-media consent agreements by October 30, 1991; and achieve emission reductions expeditiously thereafter.

4. Issue calls for SIP revisions to correct NAAQS violations.

EPA expects to make at least seven SIP calls before the end of this calendar year. A number of other areas may need SIP calls. The Regional Offices should determine by June 30, 1991 whether SIP calls are necessary. The SIP call should be made by October 31, 1991, requiring submission of the SIP's by October 31, 1992, and attainment of the NAAQS no later than three years after EPA approval of the plan.

NAAQS review

The Clean Air Act (CAA) requires that EPA review the NAAQS every five years and make any appropriate revisions. The scientific and technical assessment portion of the lead NAAQS review was completed in January 1990, when CASAC gave final closure on the lead Staff Paper and the supplement to the Addendum to the Criteria Document. CASAC concluded that: (a) EPA should set a NAAQS that minimizes the number of children with PbB greater than 10 μg/dl, (b) a NAAQS at the upper end of the range under consideration (1.0 to 1.5 $\mu g/m^3$) offers little if any margin of safety, and (c) populations not quantitatively analyzed in EPA exposure modelling should be considered for setting a margin of safety on the NAAQS. CASAC also asked EPA to examine a NAAQS of 0.25 $\mu g/m^3$, if only to provide perspective on the higher alternatives.

OAQPS has analyzed the effect of NAAQS revisions by reviewing 42 lead point sources -- the 29 sources identified for the NAAQS attainment strategy, and 13 other sources that are not currently being pursued under the attainment strategy, but which may be in non-attainment if the NAAQS is lowered. OAQPS has estimated the number of children living near these sources who would have PbB greater than 10 μg/dl at each of the alternative NAAQS levels, and at background PbA concentrations. Approximately 126,000 children live near these sources. The results are shown in the following table.

Estimated Number of Children Exceeding 10 μg/dl PbB under Alternative NAAQS Situations

NAAQS alternatives	No. children with PbB higher than 10 μg/dl
1.5 $\mu g/m^3$ quarterly, today	800
1.5 $\mu g/m^3$ quarterly, enforced	400
0.75 $\mu g/m^3$ monthly	200
0.25 $\mu g/m^3$ monthly	150
Background (0.10 $\mu g/m^3$)	150

(Assuming water level = 8 μg/l, constant soil level)

As the table shows, enforcing the current NAAQS would provide a greater incremental public health benefit than any of the contemplated NAAQS revisions. Most of the public health improvements would be near primary and secondary smelters.

While cost and technological feasibility are not to be considered in setting NAAQS, impacts on both primary and secondary smelters have implications for a broader integrated lead strategy. If none of the operating primary smelters could attain the NAAQS level selected during the Agency's review with readily available control technologies, the domestic primary smelting industry may simply shut down (OAQPS engineering analyses of NAAQS revision). This could result in increased importation of virgin lead from countries with less stringent standards. Should such smelters close, they could be potential Superfund sites due to past contamination. In addition, impacts on secondary smelter capacity have implications for EPA's efforts to promote battery recycling, and are discussed in the following section on that topic.

Secondary Smelter NSPS

As part of the lead Pollution Prevention Program, OAQPS is initiating work on a revised NSPS for secondary smelters to ensure that new or reconstructed secondary smelters apply best demonstrated control technology. New sources also must demonstrate compliance with the lead NAAQS. The analysis for this revision will consider the feasibility of performance standards based on alternative smelting technologies that would reduce lead discharges to other media as well as air.

Municipal Waste Combustor NSPS

OAQPS recently proposed an NSPS for MWC's that would require separation of lead acid storage batteries from the waste stream prior to incineration. This will be coordinated with OSW actions on batteries in landfills, previously discussed in this document. In addition, incineration of sewage sludge is currently regulated under 40 CFR Parts 60 and 61 for particulate emissions and

mercury/beryllium emissions, respectively (through which lead particulate emissions are indirectly controlled).

INTER-OFFICE COORDINATION: Compatibility among diverse Agency efforts affecting battery disposal

Background

Automotive batteries constitute roughly 80 percent of total domestic lead consumption. Recycling of these batteries is therefore a major lead pollution prevention objective. The following Agency activities will affect battery disposal and recycling.

* OTS consideration of mandating battery recycling under Section 6 of TSCA (proposal under development)

* OSW municipal solid waste landfill source separation requirements, banning batteries from landfills (proposal under development);

* OAQPS NSPS for MWC's, banning batteries from MWC's (proposed November 30, 1989);

* OAQPS NSPS for secondary smelters;

* OSW Land Ban: The "Third" rule, including lead disposal and storage requirements for smelters (June 2, 1990);

* OSW TCLP: (March 29, 1990);

* ODW replacement of 50 ppb MCL with 15 ppb "Action Level";

* OAQPS lead enforcement strategy, forcing smelters to meet lead air emission requirements of the current NAAQS; and

* OAQPS consideration of lead NAAQS revision, forcing smelters to meet more stringent air emission requirements (in development).

Many of these programs could affect the economic viability of smelters. The Land Ban, the TCLP, replacement of 50 ppb MCL with 15 ppb "Action Level", and downward revision of the lead NAAQS are all factors which could reduce the profitability of secondary smelters, causing owners to close the facilities or cut back production. Even enforcing the existing NAAQS could jeopardize this recycling capacity. Secondary smelters, however, are also the instrument by which car batteries and other lead scrap are recycled -- a very important consideration of the lead

strategy. In addition, a reduction in domestic lead production could increase foreign production, possibly leading to increased lead exposure in less regulated countries.

OAQPS analyses indicate that all but one of the 23 secondary smelters can be brought into attainment with the current NAAQS, causing at most a five percent loss of recycling capacity. The cost of additional controls could increase the cost of lead by about 22 percent, which could result in a three percent decline in the demand for lead. These recycling capacity impacts appear modest when contrasted with health risk reductions which would result from attainment of the current standards.

However, in contrast to enforcing the current NAAQS, a revised NAAQS could have a significant impact on recycling capacity. Forty to ninety percent of secondary smelter capacity could be lost, depending upon the option selected. This capacity reduction could be at least partially offset by anticipated new capacity that meets the revised standard.

Needs

The above Agency efforts affecting battery disposal must be assessed to ensure that both reduction in lead exposure and maintenance of recycling capacity are retained as important goals, and to identify and encourage cleaner technologies. The importance of maintaining lead recycling capacity -- both to prevent batteries from being discarded in the environment, and to reduce the need to mine and smelt new lead --in conjunction with the importance of bringing PbA concentrations around smelters down to an acceptable level, is an important issue in the lead strategy. Secondary smelter emissions must be brought to an acceptable level without endangering capacity.

A TSCA §6(a) requirement on battery manufacturers to recover, in spent batteries, a specified fraction of the total amount of lead needed to produce new batteries would directly compel recycling and help ensure smelter operation. The proposal to ban batteries from landfills and from MWC's would also presumably encourage recycling, since there are not many remaining disposal alternatives. Coordination between the offices preparing these regulations must be continued.

Other policies and regulations, such as some state requirements requiring battery return for recycling, may alleviate or counteract some of these effects as well.

This cluster of recent and impending regulatory decisions -- if carefully considered and coupled with a pollution prevention policy -- could conceivably encourage the smelting industry to adopt new technologies that would provide more efficient and cost-effective means of complying with the set of regulations.

Next Steps

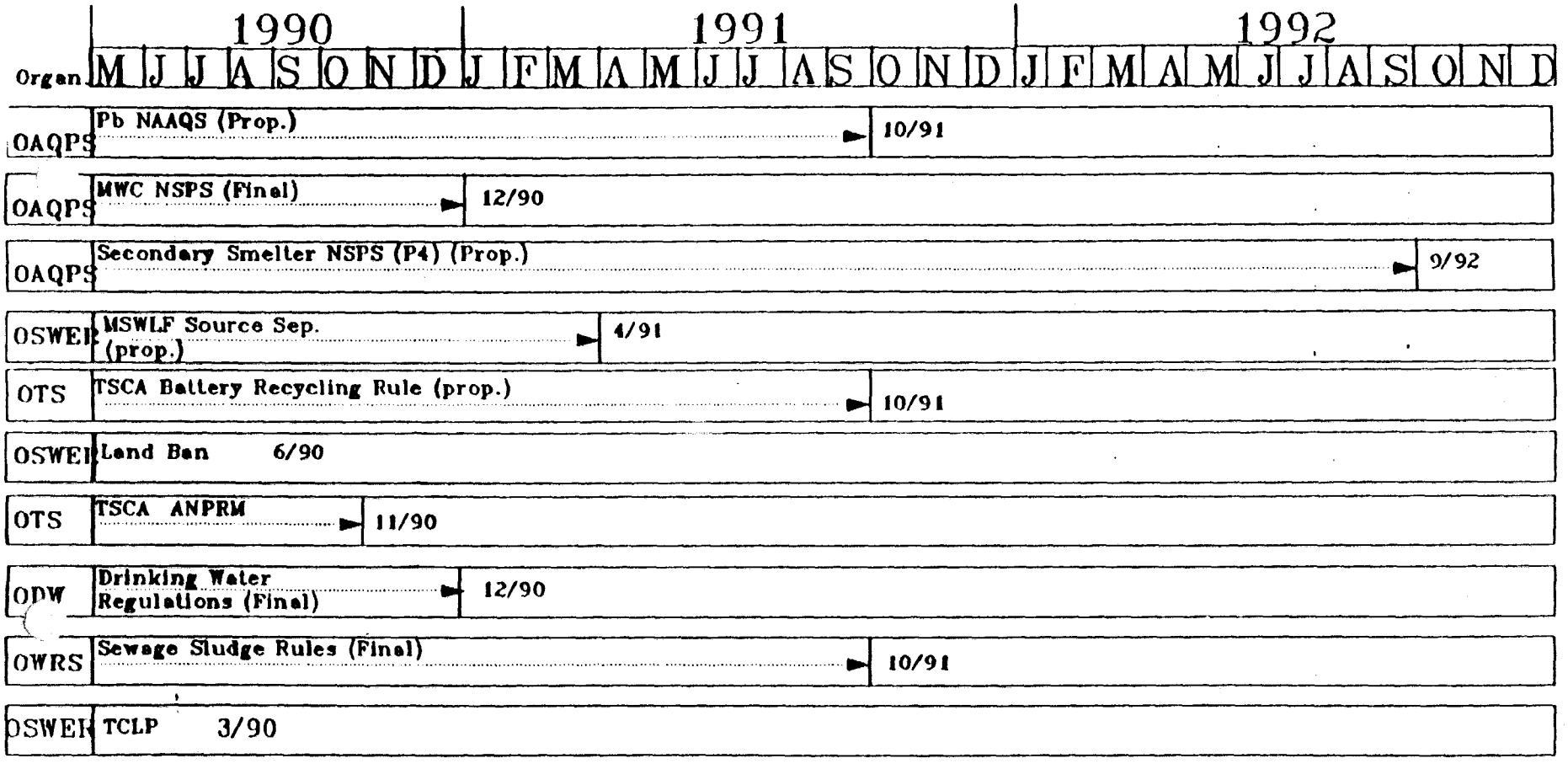
A prompt decision should be made on whether to revise the NAAQS, to dissipate regulatory uncertainty in the smelter industry. In view of the Agency-wide concern for battery recycling however, any NAAQS revision should go forward in conjunction with EPA's lead program as a whole, in coordination with other battery-related activities.

OTS will chair an ad hoc Task Force to assess, and make recommendations regarding the appropriate sequence and collective impact of the several impending decisions that could adversely affect secondary smelting capacity. The task force will consist of a subset of offices which have been directly involved in development of the Agency Lead Strategy (specifically, the offices involved in the above programs), and will report to the ODLC. The workgroup will develop a regulatory plan outlining their recommendations which will be published in a Federal Register notice. The Federal Register notice will include a statement of EPA's concern, a summary of EPA's planned actions, and a description of their effects.

GLOSSARY

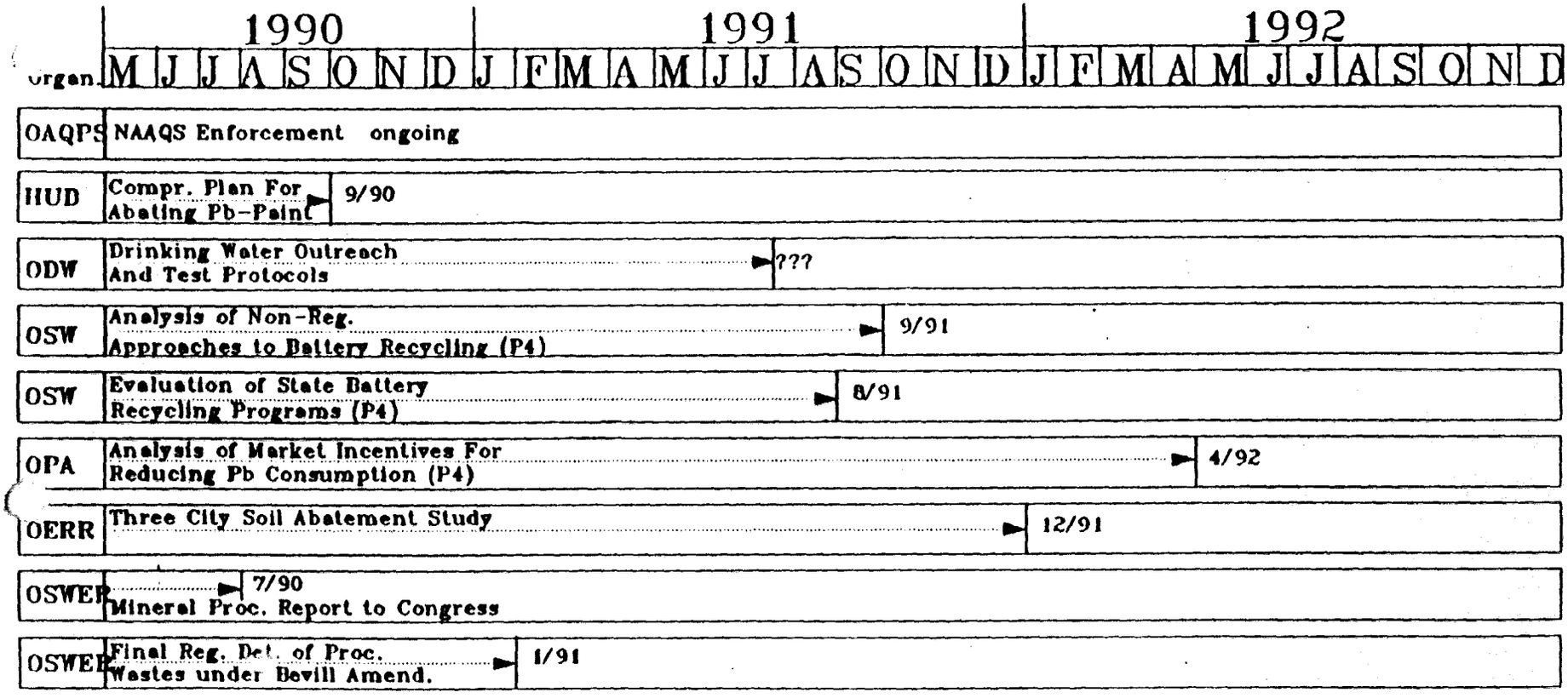
ANPR	Advance Notice of Proposed Rulemaking
ATSDR	Agency for Toxic Substance and Disease Registry
CAA	Clean Air Act
CASAC	Clean Air Science Advisory Committee
CDC	Centers for Disease Control
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CPSC	Consumer Product Safety Commission
CWA	Clean Water Act
EBL	Elevated Blood Lead
HUD	Department of Housing and Urban Development
LBP	Lead-Based Paint
LBPPPA	Lead-Based Paint Poisoning Prevention Act
LCCA	Lead Contamination Control Act
MCL	Maximum Contaminant Level
MSW	Municipal Solid Waste
MWC	Municipal Waste Combustor
NAAQS	National Ambient Air Quality Standard
NIST	National Institute of Standards and Technology
NPL	National Priority List
NPRM	Notice of Proposed Rulemaking
NSPS	New Source Performance Standard
OAQPS	Office of Air Quality Planning and Standards
ODLC	Office Directors Lead Committee
ODW	Office of Drinking Water
OERR	Office of Emergency and Remedial Response
OPP	Office of Pesticide Programs
OPPE	Office of Policy, Planning and Evaluation
ORD	Office of Research and Development
OSW	Office of Solid Waste
OSWER	Office of Solid Waste and Emergency Response
OTS	Office of Toxic Substances
OWRS	Office of Water Regulations and Standards
PbA	Air Lead
PbB	Blood Lead
PbS	Soil Lead
PbW	Water Lead
RCRA	Resource Conservation and Recovery Act
SARA	Superfund Amendments and Reauthorization Act
SDWA	Safe Drinking Water Act
SIP	State Implementation Plan (OAQPS issues) or Structural Integrity Procedure (OSW issues)
SNUR	Significant New Use Rule
TCLP	Toxic Characteristic Leaching Procedure
TSCA	Toxic Substances Control Act
USDA	U.S. Department of Agriculture
µg/dl	Micrograms per Deciliter

Regulatory Projects



* Activities affecting battery disposal and recycling

Other Projects



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CWA	Clean Water Act
EBL	Elevated Blood Lead
HUD	Department of Housing and Urban Development
LBP	Lead-Based Paint
LBPPPA	Lead-Based Paint Poisoning Prevention Act
LCCA	Lead Contamination Control Act
MCL	Maximum Contaminant Level
MSW	Municipal Solid Waste
MWC	Municipal Waste Combustor
NAAQS	National Ambient Air Quality Standard
NIST	National Institute of Standards and Technology
NPL	National Priority List
NPRM	Notice of Proposed Rulemaking
NSPS	New Source Performance Standard
OAQPS	Office of Air Quality Planning and Standards
ODLC	Office Directors Lead Committee
ODW	Office of Drinking Water
OERR	Office of Emergency and Remedial Response
OPP	Office of Pesticide Programs
OPPE	Office of Policy, Planning and Evaluation
ORD	Office of Research and Development
OSW	Office of Solid Waste
OSWER	Office of Solid Waste and Emergency Response
OTS	Office of Toxic Substances
OWRS	Office of Water Regulations and Standards
PbA	Air Lead
PbB	Blood Lead
PbS	Soil Lead
PbW	Water Lead
RCRA	Resource Conservation and Recovery Act
SARA	Superfund Amendments and Reauthorization Act
SDWA	Safe Drinking Water Act
SIP	State Implementation Plan (OAQPS issues) or Structural Integrity Procedure (OSW issues)
SNUR	Significant New Use Rule
TCLP	Toxic Characteristic Leaching Procedure
TSCA	Toxic Substances Control Act
USDA	U.S. Department of Agriculture
µg/dl	Micrograms per Deciliter

Projects Without End-Dates

S/ D	Support for HUD on Pb-based Paint
RR	Superfund (NPL) Site Cleanup

THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
DALLAS, TEXAS

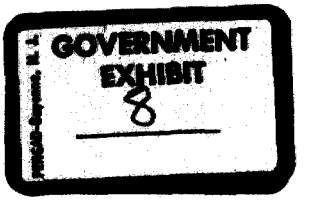
IN THE MATTER OF:	§	
	§	**ADMINISTRATIVE ORDER**
MURMUR CORPORATION and	§	
MURMUR LEASING CORP.	§	
	§	**ON CONSENT**
RESPONDENT	§	
	§	
	§	**DOCKET NUMBER**
REGARDING THE	§	
	§	**CERCLA**
WEST DALLAS LEAD (RSR) SITE	§	
DALLAS, DALLAS COUNTY, TEXAS	§	**6-05-92**
	§	
	§	
Proceeding under § 104, § 106(a) and	§	
§ 122 of the Comprehensive	§	
Environmental Response, Compensation,	§	
and Liability Act of 1980,	§	
42 U.S.C. §§ 9604, 9606(a) and	§	
9622, as Amended by The Superfund	§	
Amendments and Reauthorization Act	§	
of 1986, P.L. 99-499	§	

ADMINISTRATIVE ORDER ON CONSENT FOR REMOVAL ACTION

I. JURISDICTION

1. This ADMINISTRATIVE ORDER ON CONSENT FOR REMOVAL ACTION ("ORDER") is entered into voluntarily by the United States Environmental Protection Agency ("EPA") and Respondent pursuant to Sections 104, 106, and 122 of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 ("CERCLA"), 42 U.S.C. §§ 9604, 9606, and 9622, as amended, by authority delegated by the President of the United States to the Administrator of the U.S. EPA on January 29, 1987, by Executive Order 12580, 52 Fed. Reg. 2923, and redelegated to the Regional Administrators on February 26, 1987, by EPA delegation number 14-14-C, and further redelegated to the Director, Hazardous Waste Management Division, EPA Region 6.

2. Respondent hereby agrees to undertake all actions required by the terms and conditions of this ORDER. In any action by EPA



THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
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	§	**ADMINISTRATIVE ORDER**
MURMUR CORPORATION and	§	
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	§	**ON CONSENT**
RESPONDENT	§	
	§	
	§	**DOCKET NUMBER**
REGARDING THE	§	
	§	**CERCLA**
WEST DALLAS LEAD (RSR) SITE	§	
DALLAS, DALLAS COUNTY, TEXAS	§	**6-05-92**
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2. Respondent hereby agrees to undertake all actions required by the terms and conditions of this ORDER. In any action by EPA

or the United States to enforce the terms of this ORDER, Respondent consents to and agrees not to contest the authority or jurisdiction of EPA to issue or enforce this ORDER, and agrees not to contest the validity of this ORDER or its terms. Except for the jurisdiction and authority provisions set forth in the previous sentence, Respondent neither admits nor denies any fact, determination, finding of fact or conclusion of law whether expressed or implied contained in this ORDER.

II. DEFINITIONS

3. Unless otherwise expressly provided herein, terms used in this ORDER which are defined in CERCLA or in regulations promulgated under CERCLA shall have the meaning assigned to them in the statute or its implementing regulations. Whenever terms listed below are used in this ORDER or in the documents attached to this ORDER or incorporated by reference into this ORDER or in schedules and deadlines established and approved pursuant to this ORDER, the following definitions shall apply:

A. "Action Memorandum" shall mean the EPA Final Action Memorandum relating to the site, signed on October 21, 1991 by the Regional Administrator, EPA Region 6, and all attachments thereto. (See Attachment A.)

B. "ARARs" shall mean all applicable local, state, and Federal laws and regulations, and all "applicable requirements" or "relevant and appropriate requirements" as those terms are defined at 40 CFR § 300.5 and 42 U.S.C. § 9621(d).

C. "Area of Contamination" shall mean the area defined as the West Dallas Lead (RSR) Site.

D. "CERCLA" shall mean the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, 42 U.S.C. §§ 9601 et seq.

E. "Day" shall mean calendar day unless expressly stated to be a business day. "Business day" shall mean a day other than a Saturday, Sunday, or Federal holiday. In computing any period of time under this ORDER, where the last day would fall on a Saturday, Sunday, or Federal holiday, the period shall run until the end of the next business day.

F. "EPA" shall mean the United States Environmental Protection Agency.

G. "Murmur" shall mean Murmur Corporation and/or Murmur Leasing Corp.

H. The "Murmur Property" consists of three separate tracts, of which Tract 1 is the old RSR smelter, Tract 2 is the present location of the current operations of Murmur, and Tract 3 is the old battery breaking area previously operated by RSR and is presently under a closure order by TWC. Tract 1 and Tract 2 and 3 are separated by Westmoreland Road with Tract 1 on the southeast corner of Singleton Boulevard and Westmoreland Road and with Tract 2 and 3 on the southwest corner of Singleton Boulevard and Westmoreland Road.

I. "National Contingency Plan" or "NCP" shall mean the National Contingency Plan promulgated pursuant to § 105 of CERCLA, 42 U.S.C. § 9605, codified at 40 C.F.R. Part 300, including any amendments thereto.

J. "ORDER" shall mean this document and all attachments hereto and any further submittal(s) required pursuant to this ORDER. Such further submittal(s) shall be incorporated into and become a part of this ORDER upon final written approval by EPA of such submittal(s).

K. "Paragraph" shall mean a portion of this ORDER identified by an arabic numeral.

L. "Performance Standards" shall mean those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations, identified in and/or required by the Action Memorandum or this ORDER and its attachments, including the Statement of Work.

M. "RCRA" shall mean the Solid Waste Disposal Act, as amended, 42 U.S.C. §§ 6901 et seq.

N. "Removal action" shall mean those activities to be undertaken pursuant to this ORDER.

O. "Respondent" shall mean Murmur Corporation and/or Murmur Leasing Corp.

P. "Response Costs" shall mean all costs, including but not limited to past costs, direct costs, indirect costs, and accrued interest incurred by the United States and the State at the direction of EPA to perform or support response actions at the site, enforcement costs, legal costs, laboratory and analytical costs, and costs such as the costs of reviewing or developing plans, reports, and other items pursuant to this ORDER and costs associated with verifying the Work to be performed under the terms of this ORDER.

Q. "Section" shall mean a portion of this ORDER identified by a roman numeral and including one or more paragraphs.

R. "Site" shall mean the West Dallas Lead (RSR) Site, which is generally described with the north and east boundaries as the Trinity River, the south boundary as Fort Worth Ave. and the west boundary as Loop 12 (Walton Walker).

S. "State" shall mean the State of Texas.

T. "Tract 1" shall mean those areas which are more fully described in Paragraph 9 of this ORDER.

U. "TWC" shall mean the Texas Water Commission.

V. "United States" shall mean the United States of America.

W. "Work" shall mean all activities Respondent is required to perform under or pursuant to this ORDER and any attachments or incorporations hereto.

III. NOTICE OF ACTION

4. The EPA has notified this potentially responsible party, i.e., the Respondent, Murmur, whom it has identified as of the date of the entry of this ORDER of this action. No other PRP has been identified as of the date of this ORDER.

5. Notice of the issuance of this ORDER has been given to the State of Texas through the Texas Water Commission (TWC).

IV. PARTIES BOUND

6. This ORDER shall apply to and be binding upon the Respondent, its employees, agents, directors, officers, contractors, receivers, trustees, successors, or assigns. No change in the ownership, corporate status, or other control of the Respondent shall alter any of the Respondent's responsibilities under this ORDER.

7. The Respondent shall provide a copy of this ORDER to any subsequent owners or successors before property rights, stock, or assets are transferred.

V. STATEMENT OF PURPOSE

8. The purpose of this ORDER is to protect the public health or welfare or the environment from releases or threatened releases of any "hazardous substance" or "pollutant or contaminant" as those terms are defined in §§ 101(14) and (33), respectively, of CERCLA, 42 U.S.C. §§ 9601(14) and (33), by addressing the threat to human health and the environment posed by hazardous substances, pollutants and/or contaminants located at the facility known as the West Dallas Lead (RSR) Site (herein referred to as the "site" or "facility"). EPA

plans to address the threat by consolidation of hazardous substances from areas of contamination with the West Dallas Lead (RSR) Site onto Tract 1 which is owned by Murmur and is located within the site. Murmur will provide access for storage of equipment and contaminated soils and debris and maintain security at Tract 1 as discussed in the "Work To Be Performed Section."

VI. FINDINGS OF FACT

9. The West Dallas Lead (RSR) Site is generally described with the north and east boundaries as the Trinity River, the south boundary as Fort Worth Ave. and the west boundary as Loop 12 (Walton Walker).

Within the boundaries of the site, as described, the predominant land use is residential, both single and multi-family units. There is a moderate amount of light industry and little to no heavy industry. As the predominant land use of the area is residential, several schools, churches, parks, recreation facilities, day care centers, shopping areas and other related service oriented businesses are located within the site boundaries. Population within the area numbers in the several thousand, with the demographics reflecting predominantly low income minorities.

Tract 1 is located in Dallas, Dallas County, Texas, West of Interstate Highway 35E and North of Interstate Highway 30 at the northeast corner of the intersection of Westmoreland Road and Singleton Boulevard. The site is reached by exiting from Interstate Highway 35E at the Mockingbird Lane exit and proceeding west. Mockingbird Lane changes into Westmoreland Road, and the site is at the intersection with Singleton Boulevard, a distance of approximately five miles. From Interstate Highway 30, exit at Westmoreland Road and proceed north for approximately 1.5 miles to the intersection with Singleton Boulevard.

The legal description of the Tract 1 property is as follows:

> BEING a tract of land situated in the John C. Reed Survey, Abstract No. 1186, part of City Block 7224, City of Dallas, Dallas County, Texas, and being more particularly described as follows:
>
> BEGINNING at the intersection of the East line of Westmoreland Road, (a 100 foot R.O.W.), with the South line of Singleton Boulevard, (a 100 foot R.O.W.), an "X" found in concrete for corner;
>
> THENCE, South 88 deg. 56 min. East, with the said South line of Singleton Boulevard, a distance of 448.43 feet, to the beginning of a curve to the left having a

central angle 02 deg. 23 min. 10 sec., a radius of 6226.62 feet, an iron stake for corner;

THENCE, Easterly with the said South line of Singleton Boulevard, same being with said curve to the left, an arc distance of 259.31 feet, to the intersection with the West line of Westerfield Street, an iron stake found for corner;

THENCE, South 01 deg. 02 min. West, with the said West line of Westerfield Street, a distance of 200.6 feet, an iron stake for corner;

THENCE, North 89 deg. 19 min. West, a distance of 150.07 feet, an iron stake for corner;

THENCE, South 01 deg. 02 min. West, with the West line of a tract of land conveyed to Dallas Power and Light Company, same being with a fence line, a distance of 273.16 feet to a point in the North line of Texas and Pacific Railroad's 150 foot R.O.W., an iron stake for corner;

THENCE, Westerly with the Northerly line of said Texas and Pacific Railroad, same being with a curve to the left, having a central angle of 05 deg. 25 min. 26 sec., a radius of 5804.65 feet, tangent bearing North 85 deg. 29 min. 08 sec. West, an arc distance of 549.50 feet to the intersection with the said East line of Westmoreland Road, an iron stake for corner;

THENCE, North with the said East line of Westmoreland Road, a distance of 462.39 feet to the PLACE OF BEGINNING and CONTAINING 285,250 square feet of land or 6.5484 acres of land.

The aforementioned property description is from that survey of August 1, 1984, prepared in conjunction with the transaction described in GF #84/1176-JB of Plano Title Company.

The area immediately surrounding the Tract 1 is primarily commercial and light industrial, with some residential property within 1/4 mile. The nearest human habitation is located approximately 1/4 mile away in a northwesterly and in a northerly direction, with an immediate population of approximately 150. Tract 1 is immediately to the west of an elementary school, with a public utility transmission line easement separating the boundaries of the site and school property. The Tract 1 property line is approximately 1/8 mile from the school structures, with an approximate 1/4 mile distance separating structures on the site and school properties.

10. In July 1991, the United States Environmental Protection Agency (EPA) was notified by the Texas Water Commission (TWC) that hazardous waste and/or materials had been found in the West Dallas area. The TWC discovered this material/waste

after investigating a citizen's complaint. The materials discovered by the TWC were slag and battery chips allegedly originating from the "RSR Corporation" smelting facility and were either disposed of improperly or used as "fill" material. Analytical results on this material indicated lead levels at 64,000 ppm, arsenic levels in excess of 2000 ppm and cadmium levels above 100 ppm. After the initial discovery of the slag and battery chip material in non-residential areas, several additional citizen's complaints regarding similar contamination on residential property were received by the TWC. Analytical results from these areas were similar in concentration to the non-residential areas.

The principal contaminants of concern result from the battery recycling process and include arsenic, cadmium and lead, which are listed as hazardous substances as defined by section 101(14) of CERCLA, as amended 42 U.S.C. § 9601(14) and 40 C.F.R. Section 302.4. The most significant contamination has been associated with lead. Recent samples taken from the site show TCLP (Toxicity Characteristic Leaching Procedure) lead concentrations above the established TCLP levels of 5 ppm, so that the samples exhibit the characteristic of toxicity and are RCRA hazardous wastes, and meet the criteria for a hazardous substances under Section 101(14) of CERCLA.

11. Previous enforcement actions at the site have included EPA, several State Agencies, and the City of Dallas. The City of Dallas began a series of legal actions against the RSR Corporation, the previous owner of Tract 1, in 1968, which included fines, lawsuits, and compliance agreements, for air emission standards violations by the smelting operation on Tract 1. Based upon analytical results from the monitoring of air quality around the smelter beginning in 1968, a lawsuit was brought by the City of Dallas and the Texas Air Control Board against the RSR Corporation. An agreed settlement resulted in a 95th State Judicial District Court order, Case No. 83-5680-D, directing the RSR Corporation to install pollution abatement equipment to the smelter smoke stack and to fund a cleanup of the residential areas immediately surrounding the smelter which exceeded the 1000 ppm acceptable exposure level for lead at that time. The cleanup was conducted under the oversight of a Special Master appointed by the Court, and was completed in 1985.

A Federal Trade Commission divestiture order directed at the RSR Corporation in 1983, resulted in the acquisition of Tract 1 by the Murmur (Respondent). In August of 1983, the Texas Water Commission commenced investigations on Tract 1, the smelter location, and Tract III, the battery breaking location. On September 30, 1987, TWC issued a Commission Order directing the closure of Tract III (referred to as Site III in the Order) due to the loss of interim status and the lack of a valid permit. TWC records indicate that Tract 1,

the smelter, was abandoned prior to an August 7, 1984, industrial solid waste compliance inspection and has not operated since the inspection. Although no waste was being generated at that time, the inspection revealed a variety of waste remained at the Tract 1 location. These waste included smelter baghouse dust, spent diatomaceous earth, lead oxide dust, spent refractory brick, waste oil, spent absorbent, grease, kerosene, filter bags (in plastic bags), empty drums, contaminated rainwater and miscellaneous scrap materials. [Reference August 3, 1989, CEI Inspection Report, TWC] On October 22, 1991, EPA observed similar conditions in the area referred to as the "Batch House" in that materials which appeared to be lead oxide dust, diatomaceous earth, and baghouse dust were present in the area. Observation in the furnace portions of the smelter appeared to support the existence of waste similar to that described in the TWC report with the exception of the rainwater, waste oil, grease, and kerosene.

Sample analysis from the August 3, 1989, TWC inspection in the "Batch House" area showed lead concentrations in a dust sample from Bin #9 to be 117,000 mg/kg (117,000 ppm) and a solids sample (diatomaceous earth) from Bin #9 with lead concentrations of 49,800 mg/kg (49,800 ppm).

12. The following summary lists the contaminants of concern. The samples were taken by TWC inspectors on June 30, 1989, at the Tract 1 smelter location. Attachment C is a copy of the August 3, 1989 report.

Total Metals	Value
Location in front of Bin #9	
Lead	117,000 mg/kg
Cadmium	2080 mg/kg
Arsenic	5304 mg/kg
Location in Bin #9	
Lead	49,800 mg/kg
Cadmium	133 mg/kg
Arsenic	477.5 mg/kg

13. Field observations during the EPA visit of October 22, 1991, noted that the drop curtains on the personnel and materials entrances to the "Batch House" were in a deteriorating condition, and that some areas of siding on the wall structure allowed the passage of cross ventilated air flow. Additionally, the materials observed in the "Batch House" appear similar to those described in the TWC report of August 3, 1989, both by the location (near and in Bin #9) and physical description. No curbing to channel or control surface flow of water or liquids was noted, either in the

structure itself, or surrounding the structure. These conditions pose a threat of exposure to hazardous substances through air migration or other exposure routes.

14. On October 21, 1991, EPA Civil Investigators obtained title documents which show the current owner of Tract 1 to be Murmur.

15. The Respondent, Murmur, is a Texas corporation which manufactures and fabricates finished products such as lead sheets, plates, pipe, sleeving, and lead shot on Tract 2 of their facility.

16. The soils contaminated with smoke stack emissions and/or battery chips will be removed by EPA from the residential and highly frequented public access areas and consolidated and stored at the source, the old RSR Smelter location, now known as Tract 1. At the secure storage area on Tract 1, soil and debris will be stored pending ultimate remediation.

VII. CONCLUSIONS OF LAW

17. The site is a "facility" as defined in § 101(9) of CERCLA, 42 U.S.C. § 9601(9), because it is a site or area where hazardous substances have been deposited, stored, disposed of, placed or otherwise came to be located.

18. Each substance identified in the Findings of Fact above is a "hazardous substance" as defined by § 101(14) of CERCLA, 42 U.S.C. § 9601(14).

19. Based on the findings in paragraph 15, the Respondent is a "person" as that term is defined in § 101(21) of CERCLA, 42 U.S.C. § 9601(21).

20. CERCLA defines the term "hazardous substance" as "(A) any substance designated pursuant to section 1321(b)(2)(A) of Title 33, (B) any element, compound, mixture, solution, or substance designated pursuant to section 9602 of this title, (C) any hazardous waste having the characteristics identified under or listed pursuant to section 3001 of the Solid Waste Disposal Act [42 U.S.C.A. § 6921] (but not including any waste the regulation of which under the Solid Waste Disposal Act [42 U.S.C.A. § 6901 et seq.] has been suspended by Act of Congress), (D) any toxic pollutant listed under section 1317(a) of Title 33, (E) any hazardous air pollutant listed under section 112 of the Clean Air Act [42 U.S.C.A. § 7412], and (F) any imminently hazardous chemical substance or mixture with respect to which the Administrator has taken action pursuant to section 2606 of Title 15." The substances found at the site and identified in paragraph 11 above are "hazardous substances" as defined in § 101(14) of CERCLA, 42 U.S.C. § 9601(14), and are subject to the terms and

provisions of that act.

21. CERCLA defines the term "pollutant or contaminant" to include, but not be limited to, "any element, substance, compound, or mixture, including disease causing agents, which after release into the environment and upon exposure, ingestion, inhalation, or assimilation into any organism, either directly from the environment or indirectly by ingestion through food chains, will or may reasonably by anticipated to cause death, disease, behavioral abnormalities, cancer, genetic mutation, physiological malfunctions (including malfunctions in reproduction) or physical deformations, in such organisms or their offspring; except that the term 'pollutant or contaminant' shall not include petroleum, including crude oil of any fraction thereof which is not otherwise specifically listed or designated as a hazardous substance under subparagraphs (A) through (F) of paragraph (14) and shall not include natural gas, liquified natural gas, or synthetic gas of pipeline quality (or mixtures of natural gas and such synthetic gas)." [CERCLA § 101(33); 42 U.S.C. § 9601(33)]

22. The "spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment" of hazardous substances, constitutes a "release" as defined in § 101(22) of CERCLA, 42 U.S.C. § 9601(22). The threat of occurrence of any of the above constitutes the threat of a release of hazardous substance.

23. The past releases of uncontrolled smoke stack emissions as a result of lead smelter operations on Tract 1 caused the aerial dispersion (a.k.a. downwash or fumigation) of stack emissions at the site of hazardous substances into the "environment" which constitutes a "release" as defined in §§ 101(8) and (22) of CERCLA, 42 U.S.C. §§ 9601(8) and (22).

24. The conditions present at the Site constitute a threat to public health or welfare or the environment based upon the factors set forth in section 300.415(b)(2) of the National Oil and Hazardous Substances Pollution Contingency Plan, as amended, 40 CFR Part 300, (NCP). These factors include, but are not limited to, the following: actual or potential exposure to hazardous substances by human populations, animals, or the food chain from hazardous substances or pollutants or contaminants present at the Site due to the existence of contaminated soils largely at or near the surface, that may migrate.

25. The actual or threatened release of hazardous substances from the Site may present an imminent and substantial endangerment to the public health, welfare, or the environment pursuant to section 106(a) of CERCLA, 42 U.S.C. § 9606(a).

26. The removal actions of consolidation of the contaminated soils and debris are necessary to protect the public health, welfare and the environment and will reduce the spread of and direct contact with the contamination. The removal actions required by this Order, if promptly and properly performed, will be consistent with the NCP and CERCLA.

27. Respondent is the present "owner" or "operator" of the Site, as defined by section 101(20) of CERCLA, 42 U.S.C. § 9601(20), and within the meaning of section 107(a)(1) of CERCLA.

28. The Respondent is a responsible party as defined in § 107(a) of CERCLA, 42 U.S.C. § 9607(a), and is subject to this ORDER under § 106(a) of CERCLA, 42 U.S.C. § 9606(a).

29. As a responsible party under § 107(a) of CERCLA, 42 U.S.C. § 9607(a), Respondent is liable for all costs incurred by EPA not inconsistent with the National Oil and Hazardous Substances Pollution Contingency Plan ("NCP"), 40 C.F.R. Part 300.

VIII. DETERMINATION

30. Based on the above findings of Fact and conclusions of law, the following determinations are made:

A. To the extent practicable, the response action which EPA is performing and the activity of the Respondent required in this Order further contributes to the efficient performance of any long term remedial action with respect to the release or threatened release concerned, as required by § 104(a)(2) of CERCLA, 42 U.S.C. § 9604(a)(2).

B. The site or facility may present an imminent and substantial endangerment to the public health or welfare or the environment because of an actual or threatened release of hazardous substances from this facility.

C. The actions required by this ORDER are necessary to protect the public health or welfare or the environment, are in the public interest, and will expedite effective remedial action and minimize litigation, 42 U.S.C. § 9622(c). The actions required by this ORDER are consistent with CERCLA and the NCP, 42 U.S.C. §§ 9604(a)(1), 9622(a).

IX. ORDER

31. Based on the foregoing findings of fact, conclusions of law and determinations, and in order to protect the public health and welfare and the environment and to address the threat of

exposure from direct contact and other exposure routes with those hazardous substances which exist at the site, Respondent is hereby ORDERED and consents and agrees to comply with all terms and conditions in this ORDER.

X. WORK TO BE PERFORMED

32. Respondent agrees to allow EPA and its employees and officers access to Tract 1 at all times.

33. Respondent agrees to make available the Batch House on Tract 1 (See Attachment D, survey) and other areas that EPA deems appropriate and necessary for the consolidation and storage of contaminated soils and other related debris.

34. Respondent agrees to allow the storage of equipment, which is used to consolidate the area of contamination, and the storage and staging of contaminated soils and debris which result from the consolidation of the area of contamination.

35. Respondent agrees to assist in maintaining security for Tract 1 when personnel from EPA are not present at Tract 1 and grant access only to authorized personnel and representatives from EPA, the State and Murmur. Respondent also agrees to observe all posted warnings of EPA and secured areas designated by EPA.

XI. FUTURE RESPONSE ACTIVITY

36. Not later than 18 months from the effective date of this ORDER, EPA will contact Murmur and notify Murmur of its estimate of whether:

    a. the site will be listed on the National Priorities List (NPL) pursuant to CERCLA, 42 U.S.C. § 9601 et seq. or is still at the Office of Management and Budget (OMB) for review prior to being listed on the NPL, or

    b. the site will not be listed on the NPL.

37. If it is determined that the site will not be listed on the NPL, then the TWC will be notified and EPA will initiate ultimate disposition of the materials stored by EPA at the site.

38. If it is determined that the site will be listed on the NPL, then EPA will follow the NCP, CERCLA and other applicable and relevant regulations and guidances, policies, and procedures, and take the appropriate steps pursuant to those laws and guidelines.

39. If the ranking package is still at OMB later than 18 months

after the effective date of this ORDER, EPA, Region 6, will request a status report from EPA Headquarters (EPA HQ) regarding the status of the ranking package. EPA, Region 6, will notify Murmur of its request to EPA HQ regarding the status of the ranking. EPA will meet with Murmur as soon as it is determined whether the site will be listed on the NPL. If the site is listed on the NPL, then Paragraph 38 of this section will apply. If the site is not listed on the NPL, then Paragraph 37 of this section will apply.

XII. ENDANGERMENT AND EMERGENCY RESPONSE

40. In the event of any action or occurrence during the performance of the Work which causes or threatens to cause a release of a hazardous substance or which may present an immediate threat to public health or welfare or the environment, Respondent shall immediately take all appropriate action to prevent, abate, or minimize the threat, and shall immediately notify EPA's On-Scene Coordinator (OSC) or, if the OSC is unavailable, EPA's Emergency Response Unit, Region 6. Respondent shall take such action in consultation with EPA's OSC [or his/her designee] and in accordance with all applicable provisions of this ORDER, including but not limited to the Health and Safety Plan.

41. Nothing in the preceding paragraph shall be deemed to limit any authority of the United States to take, direct, or order all appropriate action to protect human health and the environment or to prevent, abate, or minimize an actual or threatened release of hazardous substances on, at, or from the site.

XIII. COMPLIANCE WITH APPLICABLE LAWS

42. The work to be performed under this ORDER shall be consistent with the NCP. All activities by Respondent pursuant to this ORDER shall be performed in accordance with the requirements of all applicable Federal and state laws and regulations, as well as in compliance with all applicable EPA guidances, policies, and procedures.

43. EPA retains its rights and power to take any and all action, including but not limited to any Enforcement Action, to address noncompliance by Respondent with the terms and conditions of this ORDER, or to address any other event or occurrence covered by this ORDER upon which EPA is empowered to act under any applicable law.

44. This ORDER is not, and shall not be construed to be, a permit issued pursuant to any Federal or state statute or regulation. Except as provided in § 121(e) of CERCLA and the NCP, no permit shall be required for any portion of the Work conducted entirely on-site.

45. All hazardous substances, pollutants and contaminants removed off-site will be handled and transported in accordance with applicable provisions of RCRA; the applicable regulations promulgated under that Act; applicable Department of Transportation regulations; EPA's Off-Site Disposal Policy, § 121 (d)(3), of CERCLA, 42 U.S.C. § 9621(d)(3), as implemented by OSWER Directive 9834.11 (Nov. 13, 1987); and with all other applicable Federal, state, and local requirements.

XIV. NOTICE

46. All communications, whether written or oral, between Respondent and EPA should be directed to the individuals at the addresses specified below, unless those individuals or their successors give notice in writing to all other parties to this ORDER of another designated individual to receive such communications. Any document will be considered timely if telefaxed to the other parties on the due date as long as the original is mailed to all other parties on the due date.

EPA:
U.S. Environmental Protection Agency
Emergency Response Branch (6E-ES)
Attn: Mr. Warren Zehner
On-Scene Coordinator
1445 Ross Avenue
Dallas, TX 75202-2733
214-655-2275
Fax No. 214-655-7446

One Copy To:
Mr. John Burleson
U.S. Environmental Protection Agency
Region 6
Superfund Enforcement Branch (6H-EC)
1445 Ross Avenue
Dallas, TX 75202-2733
214-655-6670
Fax No. 214-655-6790

One Copy To:
Ms. Kristine A.M. Leopold
U.S. Environmental Protection Agency
Region 6
Office of Regional Counsel (6C-WT)
1445 Ross Avenue
Dallas, Texas 75202-2733
(214) 655-2120
Fax No. (214) 655-2182

One Copy To:
Murmur Corporation
Mr. Homer J. Kirby, President
P.O. Box 224566
Dallas, Texas 75222-4566

(214) 630-5400
Fax No. (214) 634-1652

One Copy To: Mr. Paul Gosselink
Lloyd, Gosselink, Fowler, Blevins, and Mathews, P.C.
Suite 1800
111 Congress Ave.
Austin, Texas 78701
(512)322-5806
Fax No. (512)472-0532

XV. FACILITY COORDINATOR AND PROJECT OFFICER DESIGNATIONS

47. Respondent shall appoint a Facility Coordinator who shall be responsible for oversight and implementation of this ORDER and activities required herein. EPA has appointed a Project Officer (or OSC) who will be EPA's designated representative at the facility. The OSC shall have authority of a "Remedial Project Manager" (RPM) and/or "On-Scene Coordinator" (OSC) as specified in the NCP, which includes the authority consistent with the NCP to take or order any necessary response actions. For the purpose of this ORDER the designations "OSC" and "Project Officer" are synonymous.

48. The Respondent or the EPA may appoint a new Facility Coordinator or Project Officer, respectively, at any time. Such changes shall be accomplished by notifying the other party, in writing, at least five (5) days prior to the change. The notice shall consist of the name, telephone number, and mailing address of said new Facility Coordinator or Project Officer, and, for a new Facility Coordinator, his/her qualifications.

49. Routine communications may be exchanged orally between the parties to facilitate the orderly conduct of work contemplated by this ORDER, but no such communication shall alter or waive any rights and/or obligations of the parties under this ORDER. Unless otherwise provided in this ORDER, the terms of this ORDER may only be altered by mutual written consent of the parties or their successors in office.

XVI. OTHER CLAIMS

50. Nothing herein shall be construed as a release from, discharge, or in any way affect any claims, causes of action or demands in law or equity against any person, firm, partnership, or corporation, for any liability it may have to the United States, the State of Texas or any other person, firm, partnership, corporation or association arising out of or relating in any way to the generation, storage, treatment, handling, transportation, release, or disposal of any hazardous substances, hazardous wastes, solid wastes,

pollutants, or contaminants found at, taken to, or taken from the site. The parties to this ORDER expressly reserve all rights, claims, demands, and causes of action they have against any and all other persons and entities who are not parties to this ORDER, and as to each other for matters not covered herein.

51. This ORDER does not constitute any decision on preauthorization of funds under § 111(a)(2) of CERCLA, 42 U.S.C. § 9611(a)(2). In entering into this ORDER, Respondent waives any right to reimbursement for costs under section 106(b) of CERCLA, 42 U.S.C. § 9606(b). Respondent also waives any right to present a claim for costs under section 111 or 112 of CERCLA, 42 U.S.C. §§ 9611, 9612.

52. Nothing herein is intended to be an assumption by the EPA or the United States Government of liability for any injuries or damages to persons or property resulting from acts or omissions of the Respondent, its officers, directors, employees, agents, receivers, trustees, successors, assigns or contractors in carrying out activities pursuant to this ORDER, nor shall the EPA or the United States Government be held out as a party to any contract entered into by the Respondent in carrying out activities pursuant to this ORDER.

XVII. RESERVATION OF RIGHTS

53. Willful violation of, failure or refusal to comply with this ORDER, or any portion of it, may subject Respondent under § 106(b) of CERCLA, 42 U.S.C. § 9606(b), to a civil penalty of not more than TWENTY-FIVE THOUSAND DOLLARS ($25,000) for each day in which such violation occurs or such failure to comply continues. Failure to comply with this ORDER, or any portion thereof, without sufficient cause, may subject Respondent, under § 107(c)(3) of CERCLA, 42 U.S.C. § 9607(c)(3), to liability for punitive damages in an amount up to three times the costs incurred by the government as a result of the Respondent's failure to take proper action.

54. Except as expressly provided in this ORDER, each party reserves all rights and defenses it may have pursuant to any available legal authority. Nothing contained in this ORDER shall be construed as limiting any rights or authority that EPA may now, or hereafter have, under CERCLA, RCRA, or any other law, statute or regulation. EPA specifically reserves the right to take appropriate removal, remedial, cost recovery and/or enforcement action in connection with the site pursuant to any law, statute or regulation, including, but not limited to, the right to seek and obtain injunctive relief, statutory penalties and/or punitive damages.

55. Nothing herein shall limit the power and authority of EPA or the United States to take, direct, or order all actions

necessary to protect public health, welfare, or the environment or to prevent, abate, or minimize an actual or threatened release of hazardous substances, pollutants or contaminants, or hazardous or solid waste on, at, or from the Site. Further nothing in this ORDER shall preclude EPA from taking any additional enforcement actions, including modification of this ORDER or issuance of additional Orders, and/or additional remedial or removal actions as EPA may deem necessary pursuant to CERCLA, 42 U.S.C. § 9606(a) et seq., or any other applicable law.

56. The entry of this ORDER shall not be construed to be an acknowledgement by the Respondent that the release or threatened release concerned constitutes an imminent and substantial endangerment to the public health or welfare or the environment. Except as otherwise provided in the Federal Rules of Evidence, this ORDER or the participation by the Respondent shall not be considered an admission of liability for any purpose in any proceeding other than a proceeding to enforce the terms of this ORDER. Further, Respondent does not admit, and specifically denies, responsibility for the disposal of materials at the site. Respondent specifically denies the findings, conclusions, and determination in this ORDER and expressly reserves the right to challenge them and any legal consequences that may result from them other than in an enforcement proceeding pursuant to this ORDER.

57. Other than waiving its rights to contest EPA's authority or jurisdiction for purposes of enforcing this ORDER, Respondent reserves all rights and defenses that it may have under law. Except as expressly provided in this ORDER, Respondent reserves all rights and defenses that it may have to oppose and defend against any claims and actions concerning the site. In entering into this ORDER, Respondent does not waive its right to assert that other persons not a party to this ORDER are responsible for any liabilities associated with the Site or this ORDER, to seek indemnity or contribution from such persons, or to assert any claim or to impose any other defense which it may have available to it under law. Respondent retains its rights to assert claims against other potentially responsible parties at the site. However, the Respondent agrees not to contest the validity or terms of this ORDER, or the procedures underlying or relating to it in any action brought by the United States, including EPA, to enforce its terms.

58. Nothing in this ORDER affects the Respondent's rights to seek contribution, indemnity and/or any other available remedy against any person found to be responsible or liable for contribution, indemnity or otherwise for any amounts which have been or will be expended by the Respondent in connection with the site.

XVIII. INDEMNIFICATION

59. The Respondent agrees to indemnify and hold the United States Government, its agencies, departments, agents, and employees harmless from any and all claims or causes of action arising from, or on account of, acts or omissions of Respondent, its employees, agents, servants, receivers, successors, or assignees, or any persons including, but not limited to, firms, corporations, subsidiaries and contractors, in carrying out activities under this ORDER. Provided, however, that the foregoing indemnity shall not be applicable to matters arising from negligent or willful acts or omissions of the United States or its officers, employees, agents, contractors, subcontractors, or any other person acting on its behalf. The United States Government or any agency or authorized representative thereof shall not be held as a party to any contract entered into by Respondent in carrying out activities under this ORDER.

XIX. FORCE MAJEURE

60. A Force Majeure condition for the purposes of this ORDER is defined as any event arising due to circumstances beyond the control of the Respondent or any entity controlled by Respondent, including its contractors and subcontractors, which could not have been prevented or mitigated by the exercise of due diligence and that delays or prevents the performance of any obligation under the ORDER. Such events shall include, but not be limited to, Acts of God, and delays resulting from stoppage or modification of the Work due to damages to persons or property unanticipated and unattributable to Respondent. To the extent that completion of the activities specified herein is unavoidably delayed by a Force Majeure event, the time for performance shall be extended for the period of time which can be reasonably attributed to such circumstances. Delays that result from causes beyond the Respondent's control, i.e., the causes of the delay have been determined pursuant to this ORDER to constitute a Force Majeure condition, shall not be a violation of its obligations under this ORDER. Examples of events that are not Force Majeure include, but are not limited to, increased costs or expenses of any work to be performed under the ORDER or the financial difficulty of Respondent to perform such work.

61. The Respondent shall notify EPA in writing of any delay caused by circumstances beyond their control within three (3) days after the occurrence of an event causing in whole or in part such failure. The notice shall describe the reason for and anticipated duration of any delay and the actions which were or will be taken to mitigate or minimize the delay. Should Respondent become aware of circumstances which may constitute

a Force Majeure event prior to its occurrence, Respondent shall also notify EPA within three (3) days. Failure to notify EPA promptly and consistent with the provisions of this paragraph shall be considered a waiver of force majeure and grounds for denying an extension. The Respondent has the burden of proving this delay is due to circumstances beyond its control and that the delay was not preventable by the exercise of due diligence and due care, and it must also prove the length of the delay resulting from such circumstances.

XX. STIPULATED PENALTIES

62. Failure to comply with any term or condition of this ORDER is a violation of this ORDER and is subject to stipulated penalties. In the event of any violation of this ORDER, including any delay in performance of this ORDER which is not in EPA's judgment properly justified, and also including any failure to complete a deliverable in a timely manner or to produce a deliverable of acceptable quality, upon written demand by EPA the Respondent shall pay into the HAZARDOUS SUBSTANCES SUPERFUND the sum set forth in the below paragraphs of this stipulated penalties section. The due date for payment for any such sums is the date that the demand for payment is sent to Respondent.

A. The payment shall be made by mailing a money order, cashier's check, or certified check payable to the HAZARDOUS SUBSTANCES SUPERFUND within thirty (30) days of the due date to the following address:

Regional Hearing Clerk (6C)
U.S. EPA, Region 6
P.O. Box 360582M
Pittsburgh, PA 15251

B. Docket No. CERCLA 6-05-91 should be clearly typed on the check to ensure credit.

C. Respondent shall send simultaneous notices of such payments, including copies of the money order, cashier's check or certified check to the following:

Mr. John R. Burleson
United States Environmental Protection Agency
Region 6 Superfund Enforcement Branch (6H-EC)
1445 Ross Avenue
Dallas, Texas 75202-2733

Ms. Kristine A. M. Leopold
U.S. Environmental Protection Agency
Region 6 Office of Regional Counsel (6C-WT)
1445 Ross Avenue
Dallas, Texas 75202-2733

Respondent's adherence to these procedures will ensure proper credit when payments are received.

63. If EPA does not receive payment within thirty (30) days of the due date, interest will accrue on the amount due from the due date at the current annual rate prescribed and published by the Secretary of the Treasury in the Federal Register and the Treasury Fiscal Requirements Manual Bulletin per annum through the date of payment.

64. For any violation of this ORDER, stipulated penalties shall accrue from the date of violation until the violation is corrected in the amount of $1500 per day, per violation for the first week of noncompliance; $3000 per day, per violation, for the 8th through 14th day of noncompliance; and $7500 per day, per violation for the 15th day and beyond of noncompliance.

65. The stipulated penalties for violations of this ORDER, as set forth above, shall be in addition to any other remedies or sanctions which may be available to EPA by reason of the Respondent's failure to comply with the requirements of this ORDER.

XXI. PENALTIES FOR NONCOMPLIANCE

66. Failure to comply with this ORDER, or any portion thereof, without sufficient cause, may subject Respondent, under § 107(c)(3) of CERCLA, 42 U.S.C. § 9607(c)(3), to liability for punitive damages in an amount up to three times the costs incurred by the government as a result of the Respondent's failure to take proper action.

XXII. SUBSEQUENT AMENDMENT

67. In addition to the procedures set forth in this ORDER, this ORDER may be amended by mutual agreement of the EPA and the Respondent. Any amendment of this ORDER shall be in writing, signed by the EPA and the Respondent and shall be effective on the date that Respondent receives notice that such amendment has been signed by the EPA.

XXIII. TERMINATION

68. This ORDER shall terminate when all actions required to be taken by this ORDER have been completed, and Respondent has been notified by the EPA in writing that this ORDER has been satisfactorily complied with and terminated. This notice shall not, however, terminate Respondent's obligation to comply with Sections XVIII of this ORDER.

Dated, entered, and effective as of this 31st day of October, 1991, with the agreement and consent of all parties.

THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Myron O. Knudson, P.E.
Director
Hazardous Waste Management Division (6H)
United States Environmental Protection Agency

AGREED TO:

By: _____ OCT 31 1991
Homer J. Kirby, President — Date
Murmur Corporation
and Murmur Leasing Corp.

U N E D S T A T E S ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 ROSS AVENUE SUITE 1200
DALLAS TEXAS 75202-2733

MEMORANDUM

DATE: October 24, 1991

SUBJECT: ACTION MEMORANDUM
Request for Removal Action at the West Dallas (RSR) Lead Site
Dallas, Dallas County, Texas
Cerclis# TXD079348397
Site ID: 2H
Category of Removal: Emergency

FROM: Warren Zehner
Senior On-Scene Coordinator
Removal (6E-ES)

TO: Robert E. Layton Jr., P.E.
Regional Administrator (6A)

THRU: Russell F. Rhoades
Director
Environmental Services Division (6E)

I. PURPOSE

This memorandum requests approval for a Removal Action pursuant to the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) as amended, 42 U.S.C. §9601 et seq. at the West Dallas (RSR) Lead Site. The proposed action involves the control of unauthorized or inadvertent access to residential areas that are either condemned or vacant which were contaminated with the uncontrolled lead and related heavy metals smoke stack emissions originating from the RSR Corp. (Murph Metals). In addition to access control, soil in the actively utilized areas of the site contaminated by the uncontrolled smoke stack emissions or improper disposal of waste materials originating from the smelting operation will be consolidated for storage in a secure facility pending evaluation of ultimate disposal options.

This action meets the criteria for initiating a removal action under section 300.415 of the National Contingency Plan (NCP) and is anticipated to require less than twelve months and less than $2 million for completion.

II. SITE CONDITIONS AND BACKGROUND

A. Site Description

1. Removal Site Evaluation

In July 1991, the United States Environmental Protection Agency (EPA) was notified by the Texas Water Commission (TWC) that hazardous waste and/or materials had been found in the west Dallas area. The TWC discovered this material/waste after investigating a citizen's complaint. The materials discovered by the TWC were slag and battery chips allegedly originating from the RSR Corp. smelting facility and were either disposed of improperly or used as a "fill" material. Analytical results on this material indicated lead levels at 64,000 ppm, arsenic levels in excess of 2000 ppm and cadmium levels above 100 ppm. After the initial discovery of the slag and battery chip material in non-residential areas, several additional citizen's complaints regarding similar contamination on residential properties were received by the TWC. Analytical results from these areas were similar in concentration to the non-residential areas.

While the site has not been ranked for possible addition to the National Priorities List (NPL), a preliminary assessment (PA) is currently being conducted for the site.

The key problems associated with this site is contaminated soil originating from the smoke stack emissions and the improper disposal or use of waste material from the smelting process. The extent of the contamination is pending the completion of the extent of contamination survey currently being conducted by the Emergency Response Branch (ERB) of the EPA.

2. Physical Location

The site consists of several blocks of the general west Dallas area. In general, the site boundaries are as follows; north and east boundaries are the Trinity River, Fort Worth Ave. is the southern boundary and Loop 12 (Walton Walker) is the western boundary.

Within the boundaries of the site the predominant land use is residential, both single and multi-family units. There is a moderate amount of light industry and little to no heavy industry. As the predominate land use of the area is residential, several schools, churches, parks, recreational facilities, day

care centers, shopping areas and other related service oriented businesses are located within the site boundaries. Population within the area numbers several thousand, with the demographics of the population being predominantly low income, ethnic minorities.

3. Site Characteristics

As stated above the site is predominately a residential area with the associated service oriented facilities (schools, parks, etc.) and service oriented businesses. The residential areas within the site are both single family and multi-family units. All of the single family units are held by private individuals or companies (investors). The multi-family units are located within the Lakewest Public Housing Project and are owned and operated by the Dallas Housing Authority (DHA) and the City of Dallas. As aforementioned, the contamination of this area originated from the uncontrolled smoke stack emissions or the improper disposal of waste materials (using slag/battery chips for "fill" or paving material) from the secondary smelting process at the RSR Corp. facility within the boundaries of the site. At this time, this facility (the RSR/Murph Metals Lead Smelter) appears to be the only significant contributing source to the contamination of the site. This facility changed ownership in the early 1980s and has not operated since Murmur Corp./Murmur Leasing Corp. purchased the site. The current owners do not plan to resume active smelting of lead on the premises of the facility.

4. Release or Threatened Release into the Environment of a Hazardous Substance, or Pollutant or Contaminant

The site is predominantly a residential area with several highly frequented recreational and high public use areas (schools, churches, etc.). These contaminated areas are generally not secure and are readily accessible to the public. Natural vegetative barriers (grass or ground cover) are highly variable within the area making the contaminated material susceptible to rain and wind blown contaminated particles to be spread. Further, vehicular and foot traffic also potentially spreads the contamination to additional areas within the site boundaries or off-site areas.

The principal contaminants of concern include arsenic, cadmium and lead from the battery recycling process which are listed as hazardous substances as defined by section 101(14) of CERCLA, 42 U.S.C. §9601(14) and 40 C.F.R. Section 302.4. The EPA, TWC, Texas Air Control Board (TACB), and the City of Dallas have collected current or historical samples from the multi-media exposure pathways on this site. The samples were analyzed for total lead, total cadmium, total arsenic, and TCLP lead. The most significant contamination has been associated with lead. Recent samples taken from the site show TCLP lead concentrations

above the established regulatory level (5 ppm). By exceeding the regulatory level of 5 ppm, the samples exhibit the characteristic of toxicity and are RCRA hazardous wastes, and meet the criteria for hazardous substances under Section 101(14) of CERCLA. Total analysis of the heavy metals of interest indicate that in the slag on site; arsenic ranged up to 2560 ppm, cadmium ranged up to 110 ppm and lead ranged up to 64,000 ppm. Analysis of the soil/battery chips from the site show similar concentrations of the heavy metals of interest. Heavy metal contamination of just soil in the area also exhibited elevated concentrations of the target elements. Soil analysis indicated arsenic concentrations up to 326 ppm, cadmium concentrations up to 14.8 ppm and lead concentrations up to 5790 ppm. While these concentrations are significantly lower than the concentrations exhibited by the slag and soil/battery chip mixture, they are extremely elevated for a predominately residential area.

5. NPL Status

This site is not presently on the National Priorities List (NPL). EPA Superfund Site Assessment is currently initiating the evaluation process for this site's potential inclusion to the NPL.

6. Maps, Pictures and other graphic representations

See Attachment 2.

B. Other Actions to Date

1. Previous Actions

The EPA, several State agencies and the City of Dallas have conducted several previous actions against the former owners of the smelting facility (RSR Corp.) located within the boundaries of the site.

The City of Dallas began a series of legal actions against the RSR Corp. in 1968 , which included fines, lawsuits and compliance agreements, for air emission standards violations by the smelting facility on the site. In addition to the legal actions taken by the City, the City of Dallas Health Department began conducting a series of blood lead testing on the children within the current boundaries of the site in 1972. Blood lead testing was conducted again in 1981, again in 1982 in conjunction with the Center for Disease Control (CDC) and the City is currently conducting a voluntary, walk-in testing for the residents of the site area. Also, since approximately 1968, the City of Dallas has been monitoring the general air quality on the site, specifically around the smelting facility. It was these air monitoring

results that gave the City and the TACB the basis for a final lawsuit against the RSR Corp. smelter for emission violations. This lawsuit was filed in May 1983 and later settled out of court in October 1983. As part of the settlement, on October 17, 1983 the 95th State Judicial District Court ordered the RSR Corp. to add pollution abatement equipment to their smoke stack and further ordered that the corporation fund a clean-up of the residential areas immediately around the smelter, which, in general, exceeded the 1000 ppm acceptable exposure level for lead. In addition to the clean-up, several exposure reduction measures (sodding bare ground, washing building exteriors, etc.) were ordered by the court as part of the settlement. The clean-up and exposure reduction activities were over seen by a Court appointed Special Master. The Court ordered activities were completed in 1985.

Involvement by the regulatory agencies of the State of Texas was led by the TACB. The TACB's involvement on the site centered on lead emission issues (air quality samples, regulatory compliance, etc.). In 1981 the TACB conducted hearings on lead emissions and the status of the State Implementation Plan (SIP) for lead. As stated above the TACB was also a co-plaintiff with the City of Dallas in the 1983 lawsuit against RSR Corp. After the Court settlement, the Texas Department of Water Resources (now TWC) became involved in the monitoring of the clean-up.

Federal agencies involved on this site, included both the EPA and CDC. The CDC was heavily involved with the 1982-83 Dallas Area Lead Assessment Study, which was conducted jointly with the EPA and the City of Dallas. EPA began working on this site in 1980-81 by funding Argento and Crosby (University of Texas at Arlington professors). EPA participated in the aforementioned 1982-83 study and in 1983 issued an Administrative Order on Consent to RSR Corp. that reflected the stipulations of the 1983 Court ordered settlement.

2. Current Actions

As aforementioned, EPA ERB was made aware of additional contamination on this site in July 1991, by the TWC. Current actions on this site reflect a cooperative agreement between the EPA ERB, the TWC and the City of Dallas. Under the general scope of this cooperative agreement, the ERB is conducting an extent of contamination survey within the general boundaries of the historic deposition of the smoke stack emissions. In addition to the extent of contamination survey, the ERB is also conducting random sampling of the clean-up (excavation) area addressed in the 1983-1985 to address citizen concerns over the effectiveness of that clean-up effort.

In addition to the activities being conducted by the ERB, Superfund Site Assessment is currently conducting a review of the existing site data and to conduct a joint NPL evaluation with the TWC.

The TWC had agreed to address all slag and battery chip areas that are outside of the EPA extent of contamination survey. In August 1991, TWC initiated fencing actions at three slag disposal areas on site. The TWC will also be conducting a limited amount of removal actions (3) on residential properties that were found to be contaminated with battery chips as a result of their investigations. In October 1991, the TWC informed EPA that due to funding limitations, all additional residential sites that are found to be contaminated as a result of their investigations will be referred to the EPA for action.

The City of Dallas Health Department has been conducting voluntary blood lead testing and follow up in-home sampling, as needed, for the residents living within the boundaries of the site. To date, a total of 1405 people have been tested for blood lead, with 65 individuals having blood lead values above the CDC standard of 10 ug/dl. Further, within the target population of children ages 0 - 6 years of age, 174 (part of 1405) have been tested and 20 (part of 65) had values above the CDC standard. The results of the 17 in-home sampling for lead have indicated no severe or widespread in home problem, with only two elevated readings.

C. State and Local Authorities Role

As aforementioned and thoroughly described above, the TWC will continue its' site assessment sampling and remedial data gathering in conjunction with the EPA. The City of Dallas will continue its' voluntary residential health monitoring activities. Also, the EPA ERB will continue to coordinate with the Dallas Independent School District and the Dallas Housing Authority regarding any contribution or assistance they may provide regarding their contaminated properties.

III. THREAT TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT

A. Threats to Public Health and Welfare

The predominant threat to the public health and welfare on this site emanates from the inhalation and/or ingestion of lead and/or arsenic contaminated particulates. As noted in the site description, this site is predominately residential. To date several areas both within the residential areas and at those facilities such as parks and churches have been found to be contaminated with lead levels above those established as an

acceptable public health risk (500 ppm) for this type of setting. The full extent and magnitude of the lead and/or arsenic contamination on this site has yet to be determined.

Lead is a highly toxic metal, producing a range of adverse human health and environmental effects, particularly in children and fetuses. These adverse effects include reproductive system disorders, delays in neurological and physical development, cognitive and behavioral changes, and increased blood pressure.

The main exposure pathway for lead and lead compounds is through inhalation. Fine particles of lead and/or lead compounds are easily absorbed through the alveoli, tiny air sacs in the lungs, and passed readily to the blood for transportation throughout the body. Further, alveolar absorption is more efficient in juveniles than in adults. Although, recent data from the City does not indicate that there are any major lead emission currently occurring on site, historical data indicates the presence of airborne lead particulates on the site and the potential for localized windblown suspension of lead contaminated soil particulates cannot be ignored as 65 residents of the site have had elevated blood lead results.

The second major route of exposure to lead and/or lead compounds and other heavy metals is through ingestion. This route appears to have the most significance with juveniles, as noted in several studies on ingestion of lead based paint. In adults, most of the lead that is ingested is passed out through the digestive tract or as part of bile (liver) or urine.

Arsenic is a silver-gray or tin-white metal. Small amounts of arsenic are found in lead ores and arsenic is also commonly used in the alloying of lead for specific uses (eg. shot gun pellets). Human exposure to arsenic occurs through dermal absorption, inhalation and ingestion. The permissible exposure level (PEL) for arsenic dust is 10 ug/m3 in the work place. The airborne concentration which is Immediately Dangerous to Life and Health (IDLH) is 100 mg/m3, however, it should be noted that arsenic is a suspected human carcinogen and IDLH levels may not be totally protective. Acute toxicity can occur through any of the exposure pathways. Effects such as irritation to upper respiratory tract, perforation of the nasal septum, skin irritation and severe fluid loss are all symptoms of acute arsenic poisoning. Arsenic is persistent and absorbed into the body causing long term effects, such as liver damage, lung and skin cancers.

B. Threats to the Environment

The environmental media affected by this site are: air, through wind-blown dust; soil from the localized run-off.

IV. ENDANGERMENT DETERMINATION

Actual or threatened releases of hazardous substance from this site, if not addressed by implementing the response action selected in this Action Memorandum, may present an imminent and substantial endangerment to public health, or welfare, or the environment.

V. PROPOSED ACTIONS AND ESTIMATED COSTS

A. Proposed Actions

The proposed action involves the control of unauthorized or inadvertent access to residential areas that are either condemned or vacant which were contaminated with the uncontrolled lead and related heavy metals smoke stack emissions originating from the RSR Corp. (Murph Metals). In addition to access control, soil in the actively utilized areas of the site contaminated by the uncontrolled smoke stack emissions or improper disposal of waste materials originating from the smelting operation will be consolidated for storage in a secure facility pending evaluation of remediation options and the ultimate disposition of the stored materials.

1. Proposed Action Description

Securing of the condemned or vacant contaminated residential areas of the site will consist of fencing part of the Lakewest Public Housing Project (George Loving) and the placement of warning signs. This action will prevent both unauthorized and inadvertent access to this area of the site.

The remainder of the soil contaminated with smoke stack emissions and/or with battery chips will be consolidated within the area of contamination away from the residential and highly frequented public access areas (schools, churches, parks, etc.) and will be stored at Tract #1 of the Murmur property. Removal of the contaminated material is consistent and in compliance with the guidelines established in OSWER Directive #9355.4-02, as amended August 29, 1991. At the secure storage area on Tract #1, soil/debris meeting the hazardous waste criteria (TCLP > 5 ppm) will be bagged and stored for ultimate disposition of those materials through the Superfund Program. Contaminated material that does not meet the hazardous waste criteria will be evaluated for permanent disposal. Criteria that will be used to evaluate permanent site disposal options are: final volume, cost, and available remaining storage capacity in the secure storage area.

2. Contribution to remedial performance

These actions are cost effective, consistent with any long term remediation strategies that may be developed for the site since proposed actions will not impact future disposal or treatment

options. Further, all of the actions to be taken during this removal are compliant with all applicable ARARs to the extent practicable, and provide an effective mitigation of the imminent and substantial threats posed to the general public health and environment by the site.

3. Description of Alternative Technologies

Due to the emergency nature and sensitivity of this site, any alternative technologies to those described above are impractical and were not considered. The review and implementation of alternative technologies on this site based on the aforementioned sensitivity are best done by the Superfund Remedial Program.

4. Applicable or relevant and appropriate requirements (ARARS)

This removal action will be conducted to eliminate the threat or potential threat of a hazardous substance, pollutant or contaminant pursuant to the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and the Superfund Amendments and Reauthorization Act (SARA) {42 U.S.C. Sections 9601-9675}, and in a manner consistent with the National Contingency Plan {40 CFR Part 300} as required in {33 U.S.C. Section 1321(c)(2)} and {42 U.S.C.9605}.

Any hazardous substance, pollutant, or contaminant that will remain on-site must achieve any standard, requirement, criteria, or limitation under any Federal environmental law, including, but not limited to, the Safe Drinking Water Act (SDWA) {42 U.S.C. 300f et. seq.}, the Clean Air Act (CAA) 42 U.S.C. 7401 et. seq.}, the Clean Water Act (CWA) {33 U.S.C. 1251 et. seq.}, the Solid Waste Disposal Act {42 U.S.C. 6901 et. seq.}, or any promulgated standard, requirement, criteria, or limitation under a State environmental or facility siting law that is more stringent than any federal standard, requirement, criteria, or limitation contained in a program approved, authorized or delegated by the Administrator and identified to the President by the State. At the completion, a level or standard of control for such hazardous substances or pollutants or contaminants which at least attains such legally applicable or relevant and appropriate standard, requirement, criteria or limitation shall be achieved. Action shall require a level or standard of control which at least attains Maximum Contaminant Levels (MCLs) established under the SDWA and water quality criteria established under section 303 or 304 of the CWA, or where such goals or criteria are relevant and appropriate under the circumstances of the release or threatened release.

The ability and qualifications of all parties conducting the proposed Removal Action will be demonstrated. All parties involved will be experienced to conduct the Removal Action properly and promptly as required by CERCLA.

Transportation off-site of hazardous substance, pollutants, or contaminants will be in accordance with the applicable Department of Transportation regulations, and any additional applicable or relevant and appropriate Local, or State, and/or Federal Regulations.

Disposal of hazardous substances, pollutants, or contaminants will be in accordance with the Resource Conservation and Recovery Act (RCRA) of 1976, {42 U.S.C. 6921 et. seq.}, the regulations promulgated under that act, and EPA's Off-site Disposal Policy, Section 121(d)(3) of CERCLA, 42 U.S.C. 9621(d)(3) as implemented by OSWER Directive 9834.11 (November 13, 1987). Such hazardous substances, pollutants, or contaminants shall only be transferred to a facility which is operating in compliance with section 3004 and 3005 of the Solid Waste Disposal Act {42 U.S.C. 6924 and 6925} (or, where applicable, in compliance with other Federal law) and all applicable State requirements.

Requirements under the Occupational Safety and Health Act (OSHA) of 1970 {29 U.S.C. 651 et. seq.} and under the laws of States with plans approved under section 18 of the States OSHA laws, as well as other applicable safety and health requirements will be followed. Federal OSHA requirements include among other things, Hazardous Materials Operation {20 CFR Part 1910, and amended by 54 Fed. Reg. 9317} (March 5, 1989), all OSHA General Industry {29 CFR Part 1910}, and Construction {29 CFR Part 1926} standards wherever they are relevant, as well as OSHA recordkeeping and reporting regulations, and the EPA regulations set forth in 40 CFR Section 300, relating to the conduct of work at Superfund Sites.

5. Project Schedule

The emergency removal action to secure the site, provide source control, and removal of off-site contamination is scheduled to begin on November 1, 1991.

B. Estimated Costs

Extramural Costs:

Regional Allowance Costs:

ERCS Cleanup Contractor.....$1,200,000

Other Extramural Costs Not Funded From the Regional Allowance:

TAT Costs	$ 300,000
ERT Contract (REAC)	$ 40,000
Subtotal, Extramural Costs	$1,540,000
Extramural Costs Contingency (20%)	$ 308,000
TOTAL, EXTRAMURAL COSTS	$1,848,000

Intramural Costs:

Intramural Direct Costs	$ 34,000
Intramural Indirect Costs	$ 67,000
TOTAL, INTRAMURAL COSTS	$ 101,000
TOTAL, REMOVAL PROJECT CEILING	$1,949,000

VI. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

Should no action be taken, this site would remain in its present state and would continue to pose a significant potential public health risk to the residents of the area through direct contact, inhalation and/or ingestion of the lead/arsenic particulates.

VII. OUTSTANDING POLICY ISSUES

Not applicable

VII. ENFORCEMENT

See Attachment

I. RECOMMENDATION

Because conditions at these sites meet the NCP Section 300.415 (b)(2) criteria for a removal, I recommend your approval of the proposed removal action. The estimated cost for this portion of the project is $1,949,000 of which $1,200,000 is for extramural clean up contractor costs. Please indicate your approval or disapproval by signing below.

APPROVED: _____ DATE: 10/31/91

DISAPPROVE: _____ DATE: _____

087789

ATTACHMENT B

Texas Water Commission

INTEROFFICE MEMORANDUM

TO : Files DATE: 08/03/89

THRU : Ernest W. Heyer, Chief, Program Services Unit,
Field Operations Division

FROM : Tim Sewell, Environmental Quality Specialist,
District 4

SUBJECT: Murmur Corporation (Site I) - Dallas, Texas
SW Registration No. 34382; EPA I.D. No. TXD030169080
CEI Inspection; Conducted 06/30/89

On June 30, 1989 and July 13, 1989, the writer contacted Mr. Homer Kirby and Mr. Kenneth Sims, Manager, and conducted an industrial solid waste compliance inspection at the 2820 North Westmoreland facility in Dallas, Texas.

This facility, originally known as RSR Corporation, previously operated as an interim status secondary lead smelter. A Part A Permit Application was filed with EPA on November 19, 1980. According to Joan Allen, TWC Central Office, TWC received the facility's Part B Permit Application on January 30, 1985. This Part B Permit Application was declared administratively complete on February 15, 1986.

It should be noted that:

A. On August 4, 1983, Site I (not registered), the smelter site, and Site III (registered), the battery breaking waste handling site, were submitted to TWC Central Office for enforcement action;

B. Site I is not addressed in the September 30, 1987 Commission Order. The Commission Order required the closure of Site III due to loss of interim status and lack of valid permit; and

C. District files do not indicate that Site I's Part B Permit Application has been withdrawn.

In addition, no other records regarding this site were available for on-site review since the site had not operated as a secondary lead smelter in several years. The site is abandoned.

The facility is currently inactive and previously operated as a secondary lead smelter. According to District files, the facility has not operated since prior to an August 7, 1984 industrial solid waste compliance inspection conducted by

Christoper Swan of this office. Although no waste is currently generated at this facility, a variety of waste remains stored at the facility. Waste stored includes smelter baghouse dust, spent diatomaceous earth, lead oxide dust, spent refractory brick, waste oil, spent absorbant, grease, kerosene, filter bags (in plastic bags), empty drums, contaminated rainwater and miscellaneous scrap materials. Waste management units listed on the facility's NOR include a container storage area (No. 1, exact location unidentified) for spent diatomaceous earth, iron oxide slag, miscellaneous plant waste, spent refractory brick, and baghouse dust; a container storage area (No. 2, roll-off boxes, no longer present) for wood scrap and plant trash; and a container storage (No. 3, tractor trailer, no longer present) for scrap iron, lead-contaminated containers and oil-contaminated containers. In addition, the facility has several waste management facilities not listed on the NOR. These facilities include the following units:

1. Three waste piles containing refractory brick located in the southwest corner of the smelter building;

2. One waste pile containing filter bags located adjacent to the old outdoor oil storage area;

3. One baghouse dust container collection area (currently functioning as a waste management unit) located east of the baghouse building;

4. Three container storage areas located:

   a. in the southwest section of the smelter building,

   b. in the "hog" storage building, and

   c. adjacent to the outdoor oil storage area; and

5. Five waste piles containing a gray solid (possibly diatomaceous earth) located:

   a. in the southwest corner of the smelter building;

   b. in a material storage area (three-sided concrete bins) (No. 15) adjacent to north door, center of smelter building);

   c. in a loading area east of concrete bin area adjacent to north door;

d. in the material storage building (bin No. 13); and

e. in the material storage building (bin No. 9); and

6. Miscellaneous dust piles (possibly lead oxide) throughout the smelter and material storage buildings.

During this inspection, samples were collected (split with owner/operator, see attachments) from the corroded baghouse dust collection drum located beneath the northernmost collection conduit (SW06627), a dust pile (possibly containing lead oxide) adjacent to bin No. 9 (SW06628), and a waste pile containing diatomaceous earth (SW06629) stored in bin No. 9. Requested sample analyses for all samples included total lead, total cadmium, total arsenic, EP toxicity lead, EP toxicity cadmium, and EP toxicity arsenic. Since these wastes have not been reclaimed (K069 baghouse dust remains a waste even when reclaimed) or beneficially reused, it is the writer's opinion that the stored lead oxide dust and the diatomaceous earth are also hazardous waste (both are EP toxic for lead and cadmium) until such time as they are recycled. It should be noted that both of these waste streams are currently listed on the facility's NOR as being Class I nonhazardous.

Surrounding land use includes industrial and commercial activities. It should be noted that the adjacent low income housing project is unoccupied and awaiting demolition.

Chronology of Events (3-year compliance history):

June 27, 1986 - An industrial solid waste compliance inspection was conducted by Gerardo Garcia, Mike Delaney, and Sid Slocum of this office. No records were available for on-site review. Diatomaceous earth was noted as being stored on-site.

March 6, 1987 - An industrial solid waste compliance inspection was conducted by Michael Whelan of this office. No records were available for on-site review. It was noted that the company had not updated the facility's NOR to include two waste piles containing diatomaceous earth as on-site waste management facilities.

Summary of Alleged Violations

1. **TAC 335.62 - Waste Determination**
   Generators Checklist - Part A.1.

   It was noted that the facility had not completed the required waste determination for lead oxide dust, filter bags, waste oil, grease, scrap materials, kerosene, spent absorbant, and contaminated rainwater. In addition, the facility has not conducted an adequate waste determination for baghouse dust and diatomaceous earth. According to TWC sample results, these waste streams are EP toxic for lead and cadmium.

2. **TAC 335.6(b) - Notification Requirements**
   Generators Checklist - Part A.4. and 5.

   Solid Waste Registration No. 34382 should be updated with the following information:

   A. Diatomaceous earth (Waste No. 003) should be listed as hazardous waste, not Class I waste;

   B. Baghouse dust (Waste No. 010) should be listed as hazardous waste, not Class I waste;

   C. Lead oxide dust, filter bags, waste oil, grease, scrap materials, kerosene, spent absorbant, and contaminated rainwater should be listed as waste generated;

   D. Five waste piles appearing to contain diatomaceous earth should be listed as waste management units;

   E. Three container storage areas containing diatomaceous earth, used oil, grease, scrap materials, kerosene, contaminated rainwater, and spent absorbant should be listed as waste management units;

   F. One waste pile containing filter bags should be listed as a waste management unit;

   G. One container storage (dust collection) area containing baghouse dust should be listed as a waste management unit; and

Summary of Alleged Violations

1. **TAC 335.62 - Waste Determination**
   Generators Checklist - Part A.1.

   It was noted that the facility had not completed the required waste determination for lead oxide dust, filter bags, waste oil, grease, scrap materials, kerosene, spent absorbant, and contaminated rainwater. In addition, the facility has not conducted an adequate waste determination for baghouse dust and diatomaceous earth. According to TWC sample results, these waste streams are EP toxic for lead and cadmium.

2. **TAC 335.6(b) - Notification Requirements**
   Generators Checklist - Part A.4. and 5.

   Solid Waste Registration No. 34382 should be updated with the following information:

   A. Diatomaceous earth (Waste No. 003) should be listed as hazardous waste, not Class I waste;

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   C. Lead oxide dust, filter bags, waste oil, grease, scrap materials, kerosene, spent absorbant, and contaminated rainwater should be listed as waste generated;

   D. Five waste piles appearing to contain diatomaceous earth should be listed as waste management units;

   E. Three container storage areas containing diatomaceous earth, used oil, grease, scrap materials, kerosene, contaminated rainwater, and spent absorbant should be listed as waste management units;

   F. One waste pile containing filter bags should be listed as a waste management unit;

   G. One container storage (dust collection) area containing baghouse dust should be listed as a waste management unit; and

H. Three waste piles containing spent refractory brick should be listed as waste management units.

3. **TAC 335.4 - General Prohibitions**
Generators Checklist - Section B.1. and (a).

It was noted that:

A. Six corroded drums (see photos) containing baghouse dust were stored east of the baghouse in an outdoor dust collection area; and

B. Numerous drums containing contaminated rainwater were stored adjacent to the outdoor oil storage area (no canopy or covering) in poor condition or without bungs (see photos).

4. **TAC 335.71(a) and (b) - Recordkeeping**
Generators Checklist - Section D.1.(g)

It was noted that the facility does not maintain on-site records containing analytical results of hazardous waste determinations.

5. **TAC 335.112(a)(1) - Standards; 40 CFR Part 265.16 - Personnel Training**
General Facilities Checklist - Section B

It was noted that this facility does not maintain a personnel training program and records as required.

6. **TAC 335.112(a)(2) - Standards; 40 CFR Part 265.30-.37 -- Preparedness and Prevention**
General Facilities Checklist - Section C

It was noted that this facility does not adequately address preparedness and prevention requirements.

7. **TAC 335.112(a)(3) - Standards; 40 CFR Part 265.50-.56 -- Contingency and Emergency Procedures**
General Facilities Checklist - Section D2

It was noted that this facility does not address contingency and emergency procedures as required.

8. **TAC 335.112(a)(1) - Standards; 40 CFR Part 265.13 - General Waste Analysis**
General Facilities Checklist - Section E

It was noted that this facility does not maintain a written waste analysis plan as required.

9. **TAC 335.112(a)(1) - Standards; 40 CFR Part 265.14 - Security**
General Facilities Checklist - Section F

It was noted that this facility:

A. has not adequately repaired or replaced missing southern boundary fence boards - hole in fence - (see photo);

B. has not secured broken windows in the facility's western main gate guardhouse (see photo); and

C. has not posted the required warning signs on all approaches to the facility.

10. **TAC 335.112(a)(1) - Standards; 40 CFR Part 265.15 - General Inspection Requirements**
General Facilities Checklist - Section G

It was noted that this facility does not maintain written inspection schedules and logs as required.

11. **TAC 335.112(a)(4) - Standards; 40 CFR Part 265.73 - Operating Record**
General Facilities Checklist - Section J

It was noted that this facility does not maintain an operating record as required.

12. **TAC 335.112(a)(7) - Standards; 40 CFR Part 265 Subpart H - Financial Requirements**
General Facilities Checklist - Section K

It was noted that this facility does not maintain the required:

A. closure cost estimate;

B. post-closure cost estimate;

C. sudden liability assurance;

D. non-sudden liability assurance;

E. closure cost assurance; and

F. post-closure cost assurance.

13. **TAC 335.112(a)(8) - Standards; 40 CFR Part 265.171 - Condition of Containers**
Container Checklist - No. 1 and No. 3

It was noted that six drums utilized to collect and store baghouse dust were corroded and in poor condition (see photos). In addition, several drums appearing to contain residual diatomaceous earth were stored inside of the smelter building without tops and in poor condition.

14. **TAC 335.112(a)(6) - Standards; 40 CFR Part 265.112 - Closure Plan**
Closure and Post-Closure Checklist - Section A.2.

It was noted that the facility does not maintain the required written closure plan.

15. **TAC 335.112(a)(6) - Standards; 40 CFR Part 265.118 - Post-Closure Plan**
Closure and Post-Closure Checklist - Section B.2.

It was noted that the facility does not maintain the required written post-closure plan.

Other Areas of Concern

During this inspection, it was noted that facility's owner/operator had experienced numerous and continual site security deficiencies due to constant breaking and entering incidents by private citizens. According to Mr. Kirby, vagrants and others have repeatedly damaged his boundary fence or other barriers in order to gain unauthorized access to the facility. It was alleged that these individuals then either steal scrap metals and other materials or utilize the buildings as shelter. Lack of regular facility maintenance and accumulated damage to equipment and structures indicate that it is unlikely that this facility may resume smelting operations without both extensive repairs and the issuance of a Special Use Permit by the City of Dallas. Unless both of these conditions can be addressed in a timely manner, this facility may continue to present a potential threat to human health and the surrounding environment.

It is requested that these concerns be addressed concurrently with regard to the aforementioned alleged violations.

Tim Sewell

Tim Sewell

Approved

TS:jc

Attachments

087799

TEXAS WATER COMMISSION TWC 0849 (Rev 05 23 86)

District 24 Org. No. 324 Work No. 532A Lab TKA

NO. SW 06627

Site Name Murn r Corporation

Site Location 2825 N. Westmoreland
Dallas, Texas.

County Dallas Basin Trinity

Method of Collection Clean plastic scoop

JUL 10 1989

Point of Collection #1 MB Baghouse dust, northernmost drum

Type facility: ☒ Drum; ☐ Tank; ☐ Impoundment; ☐ Landfill
☐ Waste pile; ☐ Landfarm; ☐ Other

Time Collected 2:35 (am/pm — pm circled) Date Shipped 7-3-89

Add. COC #

ODOR: ☒ Yes; ☐ No. Describe

S.W. Registration (1–9)	Permit Number (10–18)	Page No. (19–21)	(22)	Date Mo. (23–24)	Day (25–26)	Yr. (27–28)	(29)
34382			B	06	30	89	W

Tim Sewell
(Collector's Signature)

30 Code	35 Parameter Value	44 Code	49 Parameter Value	58 Code	63 Parameter Value 71

RECEIVED
AUG 2 1989
DISTRICT 4

TEXAS WATER COMMISSION TWC-0849 (Rev.05-23-86)

NO. SW 06627

District 24 Org. No. 324 Work No. 532A Lab TKA

Material Sampled: ☒ Solid waste (W); ☐ Liquid waste (L); ☐ Soil (E); ☐ Well (M);
☐ Stream (S); ☐ Other (O)

AUG 1 1989

Comments

(continued on back)

Lab Only — Date rec'd: 7-3-89 cmplt: 7-24-89 Lab No. 894010-02

Analyst sign.: WMBlyn

Preservation: ☐ None; ☒ Ice; ☐ H_2SO_4; ☐ HNO_3

Other

Auxiliary Tags
LEACHATE: ☒ EP Toxicity Series; ☐ TWC

30 Code	35 Parameter Value	44 Code	49 Parameter Value	58 Code	63 Parameter Value 71
[redacted]		Total Cadmium mg/kg			
00403			2760		
[redacted]		Total Arsenic mg/kg			
00340			9096		
[redacted]		EP Tox Lead ug/l			
00680			760000		
[redacted]		EP Tox Cadmium ug/l			
			14750		
Total Lead mg/kg		EP Tox Arsenic ug/l			
	92000		58		

087800

TEXAS WATER COMMISSION TWC 0849 (Rev. 05-23-86)

District 24 Org. No. 324 Work No. 532A Lab TRA

NO. SW 06628

Site Name Murmur Corporation

Site Location 2820 N. Westmoreland
Dallas, Texas

County Dallas Basin Trinity

Method of Collection clam plastic scoop

Point of Collection Dust from floor in front of Bin #9 (material storage building)

Type facility: ☐ Drum, ☐ Tank, ☐ Impoundment; ☐ Landfill ☐ Waste pile, ☐ Landfarm, ☒ Other

Time Collected 2:50 (am) (pm) Date Shipped 7-3-89

Add. COC #s

ODOR: ☐ Yes, ☒ No, Describe

Kim Sewell
(Collector's Signature)

S.W. Registration (1–9)	Permit Number (10–18)	Page No. (19–21)	Type (22)	Date Mo. (23–24)	Date Day (25–26)	Date Yr. (27–28)	Insp. (29)
34382			B	06	30	89	W

30 Code	35 Parameter Value	44 Code	49 Parameter Value	58 Code	63 Parameter Value

RECEIVED
AUG - 2 1989
DISTRICT 4

TEXAS WATER COMMISSION TWC-0849 (Rev.05-23-86)

NO. SW 06628

District 24 Org. No. 324 Work No. 532A Lab TRA

Material Sampled: ☒ Solid waste (W); ☐ Liquid waste (L); ☐ Soil (E); ☐ Well (M); ☐ Stream (S); ☐ Other (O)

AUG 1 1989

Comments may contain lead oxide

(continued on back)

Lab Only — Date: rec'd: 7-3-89; cmplt: 7-24-89

89-4011-02 (Lab No)

Analyst sign.: [illegible]

Preservation: ☐ None; ☒ Ice; ☐ H_2SO_4; ☐ HNO_3

Other

Auxiliary Tags

LEACHATE: ☒ EP Toxicity Series; ☐ TWC

30 Code	35 Parameter Value	44 Code	49 Parameter Value	58 Code	63 Parameter Value
[redacted]		Total Cadmium mg/kg	2080		
00403		Total Arsenic mg/kg	5304		
[redacted]		EP Tox Lead ug/l	635000		
00340		EP Tox Cadmium ug/l	29000		
[redacted]		EP Tox Arsenic ug/l	214		
00680					
[redacted]					
Total Lead mg/kg	117000				

087801

TEXAS WATER COMMISSION TWC 0849 (Rev 05 23 86) District 24 Org. No. 324 Work No 532A Lab TRA

NO. SW 06629

Site Name Murmur Corporation

Site Location 3820 N. Westmoreland Dallas, Texas

County Dallas Basin Trinity

Method of Collection clean plastic scoop

JUL 10 1989

Point of Collection #3 MFC material storage building, solid material (powder) in bin #9

Type facility: ☐ Drum, ☐ Tank, ☐ Impoundment; ☐ Landfill ☒ Waste pile; ☐ Landfarm, ☐ Other

Time Collected 3:05 (am/(pm)) Date Shipped 7-3-89

Add. COC #s

ODOR: ☐ Yes; ☒ No; Describe

S.W. Registration (1–9)	Permit Number (10–18)	Page No. (19–21)	(22)	Date Mo. (23–24)	Day (25–26)	Yr. (27–28)	(29)
34382				06	30	89	

Tim Sewell (Collector's Signature)

30 Code	35 Parameter Value	44 Code	49 Parameter Value	58 Code	Parameter Value

RECEIVED AUG - 2 1989 DISTRICT 4

TEXAS WATER COMMISSION TWC-0849 (Rev.05-23-86)

NO. SW 06629

District 24 Org. No. 324 Work No. 532A Lab TRA

Material Sampled: ☒ Solid waste (W); ☐ Liquid waste (L); ☐ Soil (E); ☐ Well (M); ☐ Stream (S); ☐ Other (O)

AUG 1 1989

Comments

(continued on back)

Lab Only	Date
rec'd:	7-3-89
cmplt:	7-24-89

89-4012-02 (Lab No)

Analyst sign.: [signature]

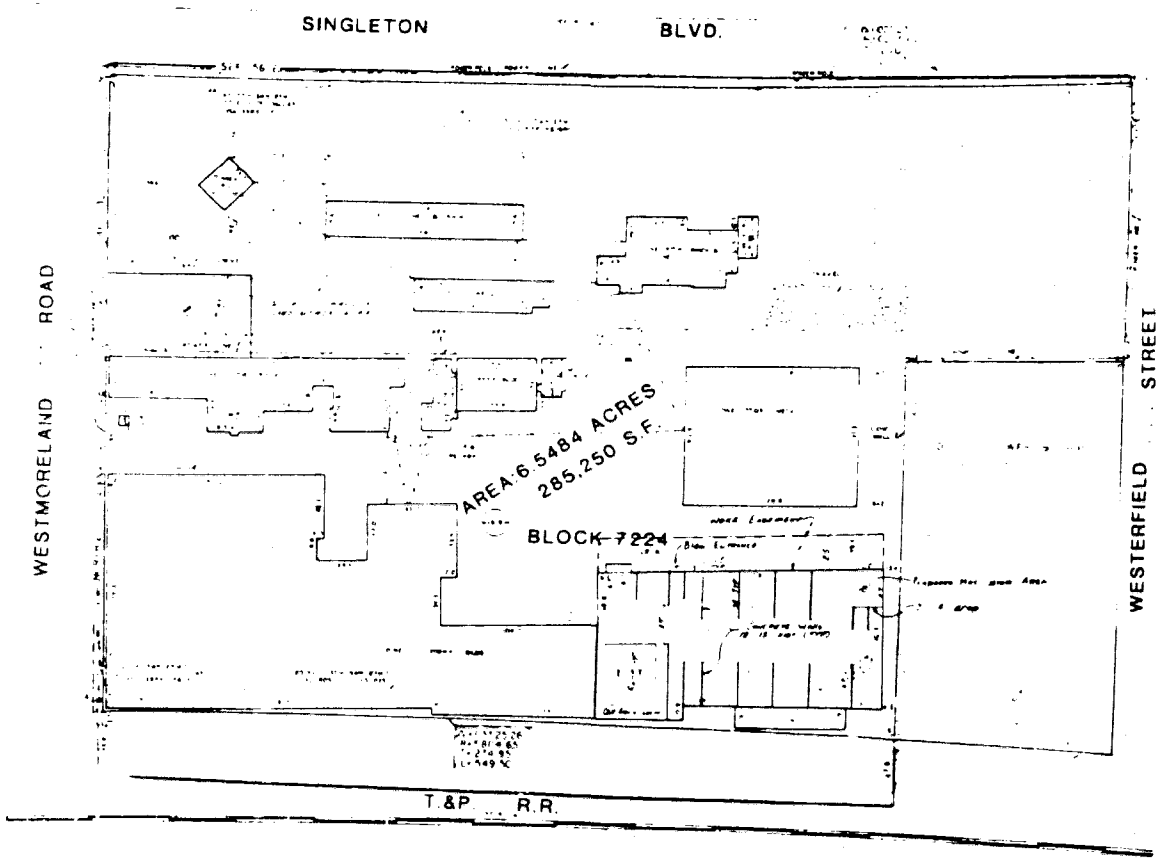
Preservation: ☐ None; ☒ Ice; ☐ H_2SO_4; ☐ HNO_3

Other

Auxiliary Tags

LEACHATE: ☒ EP Toxicity Series; ☐ TWC

30 Code	35 Parameter Value	44 Code	49 Parameter Value	58 Code	63 Parameter Value 71
[redacted]		Total Cadmium mg/kg			
00403			133		
[redacted]		Total Arsenic mg/kg			
00340			477.5		
[redacted]		EPTox Lead ug/l			
00680			13950		
[redacted]		EPTox Cadmium ug/l			
			2400		
Total Lead mg/kg		EPTOX Arsenic ug/l			
	49800		139		



STATE OF TEXAS
COUNTY OF DALLAS

I, Ben E. Trimble, Registered Public Surveyor No. 1538 do hereby certify that a survey was this day, January 1, 1984, made on the ground on the property legally described hereon and that the plat hereon drawn is a true, correct and accurate representation of said property as determined by said survey and that there are no visible discrepancies, conflicts, shortages in area, boundary lines, encroachments, protrusions or overlapping of improvements, except as shown on the plat hereon; that this instrument has been prepared in accordance with the minimum standards of practice set forth by the Texas Board of Professional Engineers and Land Surveyors; that this survey was performed in connection with a transaction described in GF No.7711-07 of Titles Title Commitment; and of this survey and any other purpose or use of any other parties shall be at their sole risk and responsibility to anyone for any loss resulting therefrom.

DESCRIPTION OF PROPERTY

BEING a tract of land situated in the John C. Reed Survey, Abstract No. 1186, part of City Block 7224, City of Dallas, Dallas County, Texas, and being more particularly described as follows:

BEGINNING at the intersection of the East line of Westmoreland Road (a 100 foot R.O.W.) with the South line of Singleton Boulevard (a 100 foot R.O.W.), as found in concrete for corner;

THENCE South 89 deg. 36 min. East, with the said South line of Singleton Boulevard, a distance of 449.71 feet, to the beginning of a curve to the left having a central angle of 90 deg. 33 min. 17 sec., a radius of 25.00 feet, and a long chord that bears;

THENCE Southerly, with the said curve to the left, an arc distance of 39.51 feet, to a point for corner on the West line of Westerfield Street, a 60 foot R.O.W.;

THENCE South 01 deg. 03 min. West with the said West line of Westerfield Street, a distance of 288.5 feet, to an iron stake for corner;

THENCE North 89 deg. 11 min. West a distance of 154.41 feet, to an iron stake for corner;

THENCE South 01 deg. 03 min. West with the West line of a tract of land conveyed to Dallas Power and Light Company, same being also a former line of Westerfield Street, a distance of 173.16 feet, to a point on the North line of Texas and Pacific Railroad, a 150 foot R.O.W., an iron stake for corner;

THENCE Westerly with the Northerly line of said Texas and Pacific Railroad, same being also a curve to the left, having a central angle of 3 deg. 29 min. 30 sec., a radius of 1859.86 feet, a long chord that bears South 87 deg. 39 min. West 113.84 feet, an arc distance of 113.86 feet, to the intersection with the said East line of Westmoreland Road, an iron stake for corner;

THENCE North 01 deg. 03 min. East with the said East line of Westmoreland Road, a distance of 577.16 feet, to the PLACE OF BEGINNING and containing 285,250 square feet or 6.5484 acres of land.

SURVEYING ASSOCIATES
1022 SOUTH BECKLEY AVE
DALLAS, TEXAS 75203 PHONE (214) 948-3334

September 23, 1991

MEMORANDUM

SUBJECT: Verbal Approval by the Regional Administrator to Perform Cleanup Activity at the West Dallas Lead Sites, aka RSR Smelter

FROM: Jo Ann Woods
ERCS DPO

TO: File

At 12:45 on September 23, 1991, the Regional Administrator, Mr. Robert E. Layton, Jr., P.E., approved the expenditure of up to $1,000,000 of extramural cleanup contractor funds, specifically Emergency Response Cleanup Services (ERCS) expenditures. A complete Action Memorandum will follow as further information is obtained. This approval allows the Emergency Response Branch to take advantage of additional funding available from Washington at the end of the fiscal year.

In addition to Mr. Layton, attendees at the briefing were Mr. Oscar Ramirez, Deputy Division Director ESD; Mr. Charles Gazda, Branch Chief, ERB; and Jo Ann Woods, ERCS DPO.

087803

GOVERNMENT EXHIBIT 9

United States Environmental Protection Agency

Office of Solid Waste and Emergency Response

EPA

DIRECTIVE NUMBER: 9834.11

TITLE: Revised Procedures for Implementing Off-Site Response Actions

APPROVAL DATE: November 13, 1987

EFFECTIVE DATE: November 13, 1987

ORIGINATING OFFICE: Office of Waste Programs Enforcement

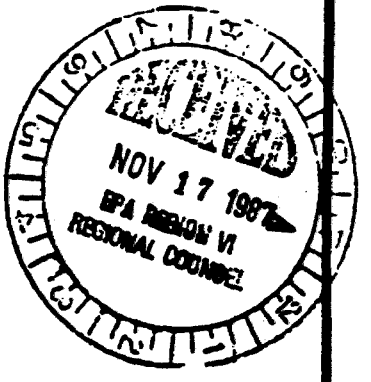
☒ **FINAL** (Interim)

☐ **DRAFT**

LEVEL OF DRAFT

- ☒ A — Signed by AA or DAA
- ☐ B — Signed by Office Director
- ☐ C — Review & Comment

REFERENCE (other documents):



SWER OSWER OSWER DIRECTIVE DIRECTIVE DI

087858

REVISED PROCEDURES FOR IMPLEMENTING OFF-SITE RESPONSE ACTIONS

I. INTRODUCTION

The off-site policy describes procedures that should be observed when a response action under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) or Section 7003 of RCRA involves off-site storage, treatment or disposal of CERCLA waste. The procedures also apply to actions taken jointly under CERCLA and another statute.

The purpose of the off-site policy is to avoid having CERCLA wastes contribute to present or future environmental problems by directing these wastes to facilities determined to be environmentally sound. It is EPA's responsibility to ensure that the criteria for governing off-site transfer of CERCLA waste result in decisions that are environmentally sensible and that reflect sound public policy. Therefore, in developing acceptability criteria, the Agency has applied environmental standards and other sound management practices to ensure that CERCLA waste will be appropriately managed.

EPA issued the original off-site policy in May 1985. See "Procedures for Planning and Implementing Off-Site Response Actions", memorandum from Jack W. McGraw to the Regional Administrators. That policy was published in the Federal Register on November 5, 1985. The 1986 amendments to CERCLA, the Superfund Amendments and Reauthorization Act (SARA), adopted EPA's policy for off-site transfer of CERCLA wastes, with some modifications. CERCLA §121(d)(3) requires that hazardous substances, pollutants or contaminants transferred off-site for treatment, storage or disposal during a CERCLA response action be transferred to a facility operating in compliance with §§3004 and 3005 of RCRA and other applicable laws or regulations. The statute also requires that receiving units at land disposal facilities have no releases of hazardous wastes or hazardous constituents. Any releases from other units at a land disposal facility must also be controlled by a RCRA or equivalent corrective action program. While the original policy required compliance with RCRA and other applicable laws, SARA goes beyond the original policy, primarily by prohibiting disposal at units at a land disposal facility with releases, rather than allowing the Agency to judge whether the releases constituted environmental conditions that affected the satisfactory operation of a facility.

The off-site policy has been revised in light of the mandates of SARA. This revised policy also extends the SARA concepts to certain situations not specifically covered by the statute. These requirements apply to CERCLA decision documents signed, and RCRA §7003 actions taken, after enactment of SARA. Specifically, this policy covers:

- Extending SARA's "no release" requirement to all RCRA units receiving CERCLA waste, not just units at RCRA land disposal facilities;

- Expanding SARA's release prohibition to include releases of CERCLA hazardous substances, in addition to releases of RCRA hazardous waste and hazardous constituents;

- Addressing releases from other units at RCRA treatment and storage facilities; and

- Addressing off-site transfer to non-RCRA facilities.

The revised policy also reinterprets the May 1985 policy as it now applies to CERCLA decision documents signed, and RCRA §7003 actions taken, prior to the enactment of SARA.

The revised off-site policy is effective immediately upon issuance. It is considered to be an interim policy as key elements of the policy will be incorporated in a proposed rule to be published in the Federal Register. As part of that rulemaking, the policy will be subject to public comment. Comments received during that period may cause additional revisions to the policy. The final rule will reflect the final policy under CERCLA §121(d)(3) and EPA will issue a revised implementation policy memorandum if necessary.

II. APPLICABILITY

There are a number of variables which will determine whether and how the off-site policy applies: waste type, authority, funding source, and whether the decision document or order supporting the clean-up was signed before or after the enactment of SARA (i.e., before or after October 17, 1986). In order to determine which elements of the policy apply to a specific CERCLA cleanup each factor must be considered.

The first factor to consider is the type of waste to be transferred. The revised policy applies to the off-site treatment, storage or disposal of all CERCLA waste. CERCLA wastes include RCRA hazardous wastes and other CERCLA hazardous substances, pollutants and contaminants. RCRA hazardous wastes are either listed or defined by characteristic in 40 CFR Part 261. CERCLA hazardous substances are defined in 40 CFR 300.6.

Because RCRA permits and interim status apply to specific wastes and specific storage, treatment or disposal processes, the Remedial Project Manager (RPM) or On-Scene Coordinator (OSC) must determine that the facility's permit or interim

status authorizes receipt of the wastes that would be transported to the facility and the type of process contemplated for the wastes. Therefore, it is important that facility selection be coordinated with RCRA personnel.

A CERCLA hazardous substance that is not a RCRA hazardous waste or hazardous constituent (i.e., non-RCRA waste) may be taken to a RCRA facility if it is not otherwise incompatible with the RCRA waste, even though receipt of that waste is not expressly authorized under interim status or in the permit. Non-RCRA wastes can also be managed at non-RCRA facilities. Criteria applicable to CERCLA wastes that can be disposed of at non-Subtitle C facilities are discussed later in this revised policy.

The second factor to consider in determining whether this revised policy applies is the statutory authority for the action. This revised off-site policy applies to any remedial or removal action involving the off-site transfer of any hazardous substance, pollutant, or contaminant under any CERCLA authority or under RCRA §7003. This policy also applies to response actions taken under §311 of the Clean Water Act, except for cleanups of petroleum products. The policy also covers cleanups at Federal facilities under §120 of SARA.

The third factor to assess is the source of funding. The revised policy applies to all Fund-financed response actions, whether EPA or the State is the lead agency. The policy does not apply to State-lead enforcement actions (even at NPL sites) if no CERCLA funds are involved. It does apply to State-lead enforcement actions where EPA provides any site-specific funding through a Cooperative Agreement or Multi-Site Cooperative Agreement, even though the State may be using its own enforcement authorities to compel the cleanup. Similarly, non-NPL sites are covered by this policy only where there is an expenditure of Fund money or where the cleanup is undertaken under CERCLA authority.

The final factor that affects how this revised policy applies is the date of the decision document. As noted earlier, there are two classes of actions subject to slightly different procedures governing off-site transfer: first, those actions resulting from pre-SARA decision documents or RCRA §7003 orders issued prior to October 17, 1986, are subject to the May 1985 policy as updated by this revised policy; and second, those actions resulting from post-SARA decision documents or RCRA §7003 orders issued after October 17, 1986, are subject to the requirements of SARA as interpreted and expanded by this revised policy. Although the procedures in this policy are similar for these two classes of actions, there are important differences (e.g., the requirements pertaining to

releases from other units at a facility) that will be highlighted throughout this document.

Compliance with the revised procedures is mandatory for removal and remedial actions. However, there is an emergency exemption for removals if the OSC determines that the exigencies of the situation require off-site treatment, storage or disposal without following the requirements. This exception may be used when the OSC believes that the threat posed by the substances makes it imperative to remove the substances immediately and there is insufficient time to observe these procedures without endangering public health, welfare or the environment. In such cases, the OSC should consider temporary solutions (e.g., interim storage) to allow time to locate an acceptable facility. The OSC must provide a written explanation of his or her decision to use this emergency exemption to the Regional Administrator within 60 days of taking the action. In Regions in which authority to make removal decisions has not been fully delegated by the Regional Administrator to the OSC, the decisions discussed above must be made by the Regional official to whom removal authority has been delegated. This emergency exemption is also available to OSC's taking response actions under §311 of the Clean Water Act.

III. DEFINITIONS

A. Release

For the purposes of this policy, the term "release" is defined here as it is defined by §101(22) of CERCLA, which is repeated in 40 CFR 300.6 o the NCP, and the RCRA §3008(h) guidance ("Interpretation of Section 3008(h) of the Solid Waste Disposal Act", memorandum from J. Winston Porter and Courtney M. Price to the Regional Administrators, et al, December 16, 1985). To summarize, a release is any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injection, escaping, leaching, dumping or disposing to the environment. This includes releases to surface water, ground water, land surface, soil and air.

A release also includes a substantial threat of a release. In determining whether a substantial threat of release exists, both the imminence of the threat and the potential magnitude of the release should be considered. Examples of situations where a substantial threat of a release may exist include a weakened or inadequately engineered dike wall at a surface impoundment, or a severely rusted treatment or storage tank.

De minimis releases from receiving units are exempt; that is, they are not considered to be releases under the off-site

policy. De minimis releases are those that do not adversely affect public health or the environment, such as releases to the air from temporary opening and closing of bungs, releases between landfill liners of 1 gallon/acre/day or less, or stack emissions from incinerators not otherwise subject to Clean Air Act permits. Releases that need to be addressed by implementing a contingency plan would not normally be considered de minimis releases.

Federally-permitted releases, as defined by CERCLA §101(10) and 40 CFR 300.6, are also exempt. These include discharges or releases in compliance with applicable permits under RCRA, the Clean Water Act, Clean Air Act, Safe Drinking Water Act, Marine Protection, Research and Sanctuaries Act, and Atomic Energy Act or analogous State authorities.

For purposes of this policy, an interim status unit in RCRA ground-water assessment monitoring (under 40 CFR 265.93) or a permitted unit in compliance monitoring (under 40 CFR 264.99) is not presumed to have a release. EPA will evaluate available information, including the data which led to a determination of the need for assessment or compliance monitoring, data gathered during assessment monitoring, and any other relevant data, including that gathered from applicable compliance inspections. A determination of unacceptability should be made when information will support the conclusion that there is a probable release to ground water from the receiving unit. Finding a release can happen at any time before, during or after an assessment or compliance monitoring program.

On the other hand, it is not necessary to have actual sampling data to determine that there is a release. An inspector may find other evidence that a release has occurred, such as a broken dike or feed line at a surface impoundment. Less obvious indications of a release might also be adequate to make the determination. For example, EPA could have sufficient information on the contents of a land disposal unit, the design and operating characteristics of the unit, or the hydrogeology of the area in which the unit is located to conclude that there is or has been a release to the environment.

B. Receiving Unit

The receiving unit is any unit that receives off-site CERCLA waste:

(1) for treatment using BDAT, including any pre-treatment or storage units used prior to treatment;

(2) for treatment to substantially reduce its mobility,

toxicity or persistence in the absence of a defined BDAT; or

(3) for storage or ultimate disposal of waste not treated to the previous criteria.

Note that the acceptability criteria may vary from unit to unit, and that the receiving unit may vary from transfer to transfer.

C. Other Units

Other units are all other regulated units and solid waste management units (SWMU's) at a facility that are not receiving units.

D. Controlled Release

In order to be considered a controlled release, the release must be addressed by a RCRA corrective action program (incorporated in a permit or order) or a corrective action program approved and enforceable under another applicable Federal or delegated State authority.

E. Relevant Violations

Relevant violations include Class I violations as defined by the RCRA Enforcement Response Policy (December 21, 1984, and subsequent revisions) at or affecting a receiving unit. A Class I violation is a significant deviation from regulations, compliance order provisions or permit conditions designed to:

- o Ensure that hazardous waste is destined for and delivered to authorized facilities;
- o Prevent releases of hazardous waste or constituents to the environment;
- o Ensure early detection of such releases; or
- o Compel corrective action for releases.

Recordkeeping and reporting requirements (such as failure to submit the biennial report or failure to maintain a copy of the closure plan at the facility) are generally not considered to be Class I violations.

Violations affecting a receiving unit include all ground-water monitoring violations unless the receiving unit is outside the waste management area which the ground-water monitoring system was designed to monitor. Facility-wide Class I violations (such as failure to comply with financial

responsibility requirements, inadequate closure plan, inadequate waste analysis plan, inadequate inspection plan, etc.) that affect the receiving unit are also relevant violations.

Violations of State or other Federal laws should also be examined for relevance, considering the significance of the requirement that is being violated; the extent of deviation from the requirement; and the potential or actual threat to human health or the environment.

F. Relevant Release

A relevant release under this revised policy includes:

- Any release or significant threat of release of a hazardous substance (defined in 40 CFR 300.6) not previously excluded (i.e., de minimis releases or permitted releases) at all units of a RCRA Subtitle C land disposal facility and at receiving units of a RCRA Subtitle C treatment or storage facility; and

- Environmentally significant releases of any hazardous substance not previously excluded at non-receiving units at RCRA Subtitle C treatment and storage facilities and at all units at other facilities.

G. Relevant Conditions

Relevant conditions include any environmental conditions (besides a relevant violation) at a facility that pose a significant threat to public health, welfare or the environment or that otherwise affect the satisfactory operation of the facility.

H. Responsible Agency

Determinations of acceptability to receive an off-site transfer of CERCLA waste will be made by EPA or by States authorized for corrective action under §3004(u) of RCRA. References in this document to the "responsible Agency" refer only to EPA Regions or to States with this authority.

I. Responsible Government Official

The responsible government official is that person authorized in the responsible Agency to make acceptability determinations under this revised policy.

IV. ACCEPTABILITY CRITERIA

A. Acceptability Criteria for Wastes Generated Under Pre-SARA Decision Documents

CERCLA wastes from actions resulting from pre-SARA decision documents and pre-SARA RCRA §7003 orders may go to a facility meeting the following criteria:

- o There are no relevant violations at or affecting the receiving unit; and
- o There are no relevant conditions at the facility (i.e., other environmental conditions that pose a significant threat to public health, welfare or the environment or otherwise affect the satisfactory operation of the facility).

In order to determine if there is a relevant violation, an appropriate compliance inspection must be conducted no more than six months before the expected date of receipt of CERCLA waste. This inspection, at a minimum, must address all regulated units. This inspection may be conducted by EPA, a State or an authorized representative. When a State conducts the inspection, it should determine the facility's compliance status. Where a violation or potential violation comes to EPA's attention (e.g., through a citizen complaint or a facility visit by permit staff), the Region or State is expected to investigate whether a violation occurred as soon as is reasonably possible.

The May 1985 policy does not refer specifically to releases. Rather, a corrective action plan is required for relevant conditions. Therefore, in some cases, a facility receiving CERCLA wastes from an action subject to a pre-SARA decision document may not need to institute a program to control releases. Releases will be evaluated by the responsible Agency to determine whether such releases constitute relevant conditions under this policy.

The activities related to determining acceptability, providing notice to facilities, regaining acceptability and implementation procedures are discussed in the "Implementation" section of this document, and apply to off-site transfers of waste generated under pre-SARA and post-SARA decision documents.

B. Acceptability Criteria for Wastes Generated Under Post-SARA Decision Documents

Under this revised policy, there are three basic criteria that are used to determine the acceptability of a facility to receive off-site transfers of CERCLA waste generated under a post-SARA decision document or post-SARA RCRA §7003 cleanup. The criteria are:

- o There must be no relevant violations at or affecting the receiving unit;
- o There must be no releases from receiving units and contamination from prior releases at receiving units must be addressed as appropriate; and
- o Releases at other units must be addressed as appropriate.

The last two criteria are applied somewhat differently, depending on the type of facility. These differences are described below.

1. Criteria Applicable to All RCRA Subtitle C Treatment, Storage and Disposal Facilities. The first criterion that applies to all Subtitle C facilities is that there can be no relevant violations at or affecting the receiving unit. As discussed earlier, this determination must be based on an inspection conducted no more than six months prior to receipt of CERCLA waste.

A second element that applies to all Subtitle C facilities is that there must be no releases at receiving units. Releases from receiving units, except for de minimis releases and State- and Federally-permitted releases, must be eliminated and any prior contamination from the release must be controlled by a corrective action permit or order under Subtitle C, as described in the next section.

The final criterion that applies to all Subtitle C facilities, is that the facility must have undergone a RCRA Facility Assessment (RFA) or equivalent facility-wide investigation. This investigation addresses EPA's affirmative duty under CERCLA §121(d)(3) to determine that there are no releases at the facility.

Releases of RCRA hazardous waste or hazardous constituents and CERCLA hazardous substances are all included under the policy. While the RFA need not focus on identifying releases of hazardous substances that are not RCRA hazardous wastes or hazardous constituents, to the extent such releases are discovered in an RFA or through other means, they will be

considered the same as a release of hazardous waste or hazardous constituents.

o Additional Criteria Applicable to RCRA Subtitle C Land Disposal Facilities. Land disposal facilities must meet additional requirements imposed by SARA and this policy. The term "land disposal facility" means any RCRA facility at which a land disposal unit is located, regardless of whether the land disposal unit is the receiving unit. Land disposal units include surface impoundments, landfills, land treatment units and waste piles.

As stated earlier, there must be no releases at or from receiving units. In addition, releases from other units at a land disposal facility must be controlled under a corrective action program. The RFA will help determine whether there is a release. In addition, land disposal facilities must have received a comprehensive ground-water monitoring evaluation (CME) or an operation and maintenance (O&M) inspection within the last year.

Units at RCRA Subtitle C land disposal facilities receiving CERCLA waste that is also RCRA hazardous waste must meet the RCRA minimum technology requirements of RCRA §3004(o). Only where a facility has been granted a waiver can a land disposal unit not meeting the minimum technology requirements be considered acceptable for off-site disposal of CERCLA waste that is RCRA hazardous waste.

o Criteria Applicable to Subtitle C Treatment and Storage Facilities. The criterion for controlling releases from other units does not apply to all releases at treatment and storage facilities, as it does at land disposal facilities. Releases from other units at treatment and storage facilities must be evaluated for environmental significance and their effect on the satisfactory operation of the facility. If determined by the responsible Agency to be environmentally significant, releases must be controlled by a corrective action program under an applicable authority. Releases from other units at treatment and storage facilities determined not to be environmentally significant do not affect the acceptability of the facility for receipt of CERCLA waste.

2. Criteria Applicable to RCRA Permit-by-Rule Facilities. This revised policy is also applicable to facilities subject to the RCRA permit-by-rule provisions in 40 CFR 270.60. These include ocean disposal barges or vessels, injection wells and publicly owned treatment works (POTWs). Permit-by-rule facilities receiving RCRA hazardous waste must have a RCRA permit or RCRA interim status. RCRA permit-by-rule facilities must also receive an inspection for compliance with applicable RCRA permit or interim status requirements. In addition, these

facilities (and other non-RCRA facilities) should be inspected by the appropriate inspectors for other applicable laws.

In general, except for POTWs (discussed below), these facilities will be subject to the same requirements as RCRA treatment and storage facilities. That is, there can be no releases of hazardous waste, hazardous constituents or hazardous substances from receiving units. There also can be no relevant violations at or affecting the receiving unit, as confirmed by an inspection conducted no more than six months prior to the receipt of CERCLA waste. Releases from other units determined by the responsible Agency to be environmentally significant must be controlled by an enforceable agreement under the applicable authority.

Criteria for discharge of wastewater from CERCLA sites to POTWs can be found in a memorandum titled, "Discharge of Wastewater from CERCLA Sites into POTWs," dated April 15, 1986. That memorandum requires an evaluation during the RI/FS process for the CERCLA site to consider such points as:

- the quantity and quality of the CERCLA wastewater and its compatibility with the POTW;
- the ability of the POTW to ensure compliance with applicable pretreatment standards;
- the POTWs record of compliance with its NPDES permit; and
- the potential for ground-water contamination from transport to or impoundment of CERCLA wastewater at the POTW.

Based on a consideration of these and other points listed in the memorandum, the POTW may be deemed appropriate or inappropriate for receipt of CERCLA waste.

3. Criteria Applicable to Non-Subtitle C Facilities. In some instances, it may be appropriate to use a non-Subtitle C facility for off-site transfer: for example, PCB disposal is regulated under the Toxic Substances Control Act (TSCA); nonhazardous waste disposal is regulated under Subtitle D of RCRA and applicable State laws; and disposal of radionuclides is regulated under the Atomic Energy Act. At such facilities, all releases are treated in the same manner as releases from other units at Subtitle C treatment and storage facilities. That is, the responsible Agency should make a determination as to whether the release is environmentally significant and, if so, the release should be controlled by a corrective action program under the applicable Federal or State authority.

Requirements for the disposal of PCBs are established in 40 CFR 761.60. Generally, these regulations require that whenever disposal of PCBs is undertaken, they must be incinerated, unless the concentrations are less than 50 ppm. If the concentrations are between 50 and 500 ppm, the rule provides for certain exceptions that provide alternatives to the incineration requirements. The principal alternative is disposal in a TSCA-permitted landfill for PCBs. If a TSCA landfill is the receiving unit for PCBs, then that facility is subject to the same criteria applicable if a RCRA land disposal unit is the receiving unit; i.e., no relevant violations, no releases at the receiving unit and controlled releases at other units. PCBs at levels less than 50 ppm may be transported to acceptable Subtitle D facilities as discussed previously.

V. IMPLEMENTATION

A. Determining Acceptability

Acceptability determinations under the off-site policy will be made by EPA or by States authorized for corrective action under §3004(u) of RCRA. Where States have such authority, the State may make acceptability determinations for facilities in the State in consultation with EPA. Regardless of a State's authorization status, the Region and States should establish, in the Superfund Memorandum of Agreement, mechanisms to ensure timely exchange of information, notification of facilities and coordination of activities related to the acceptability of facilities and potential selection of facilities for off-site transfer. The Regions and States also need to establish or enhance coordination mechanisms with their respective RCRA program staffs in order to ensure timely receipt of information on inspections, violations and releases. These agreements can be embodied in State authorization Memoranda of Agreement, State grant agreements, or State-EPA enforcement agreements.

The responsible government official in the Region or State in which a hazardous waste facility is located will determine whether the facility has relevant violations or releases which may preclude its use for off-site transfer of CERCLA wastes. Each Region and State should have a designated off-site coordinator responsible for ensuring effective communication between CERCLA response program staff and RCRA enforcement staff within the Regional Offices, with States, and with other Regions and States.

The off-site coordinator should maintain a file of all information on the compliance and release status of each commercial facility in the Region or State. This information should be updated based on the results of State- or

EPA-conducted compliance inspections or other information on these facilities.

CERCLA response program staff should identify potential off-site facilities early in the removal action or the remedial design process and check with the appropriate Regional and/or State off-site coordinator(s) regarding the acceptability status of the facilities. If one or more facilities is identified that has not received an inspection within the last six months, the Regional off-site coordinator(s) should arrange to have such inspection(s) conducted within a timeframe dictated by the project schedule. The CERCLA REM/FIT contractor may conduct the inspection under the direction of the Deputy Project Officer. If contractor personnel are used, the Region should ensure that such personnel are adequately trained to conduct the inspections.

Responsible Agencies should base their acceptability determinations on an evaluation of a facility's compliance status and, as appropriate, whether the facility has releases or other environmental conditions that affect the satisfactory operation of the facility. States not authorized for HSWA corrective action may assist EPA in making the acceptability determination by determining a facility's compliance status (based on a State inspection) and providing this information to EPA. Regions and States should use the following types of information to make acceptability determinations:

- o State- or EPA-conducted inspections. EPA will continue to assign high priority to conducting inspections at commercial land disposal, treatment and storage facilities. Facilities designated to receive CERCLA waste must be inspected within six months of the planned receipt of the waste. In addition, land disposal facilities must have received a comprehensive ground-water monitoring inspection (CME) or an operation and maintenance (O&M) inspection within the last year, in accordance with the timeframes specified in the RCRA Implementation Plan (RIP).

- o RCRA Facility Assessments (RFAs). To be eligible under this policy, a RCRA Subtitle C facility must have had an RFA or equivalent facility-wide investigation. The RFA or its equivalent must be designed to identify existing and potential releases of hazardous waste and hazardous constituents from solid waste management units at the facility.

- o Other data sources. Other documents such as the facility's permit application, permit, Ground Water Task Force report, ground-water monitoring data or

ground-water assessment report can contain information on violations, releases or other conditions. Relevant information from these documents should also be used to determine a facility's acceptability to receive waste under the off-site policy.

B. Notice Procedures

EPA expects that Regions and States will take timely and appropriate enforcement action on determining that a violation has occurred. Where a responsible Agency performs an inspection that identifies a relevant violation at a commercial facility likely to accept CERCLA wastes, within five working days of the violation determination, the responsible Agency must provide written notice to the facility of the violation and the effects of applying this policy. States not authorized for HSWA corrective action should inform EPA of the violation so that EPA can notify the facility of the effect of the violation under this policy. (See RCRA Enforcement Response Policy for a discussion of appropriate enforcement responses and timeframes for Class I violations.)

When the responsible Agency determines that a relevant release has occurred, or that relevant conditions exist, the responsible Agency must notify the facility in writing within five working days of that determination. The notice must also state the effect of the determination under this policy. A copy of any notice must also be provided to the non-issuing Region or State in which the facility is located. States not authorized for HSWA corrective action should provide EPA with information on releases so that EPA can determin. whether a relevant release has occurred.

Private parties conducting a response action subject to this policy will need to obtain information on the acceptability of commercial facilities. The responsible Agency must respond with respect to both pre-SARA and post-SARA wastes. In addition, the responsible Agency should indicate whether the facility is currently undergoing a review of acceptability and the date the review is expected to be completed. No enforcement sensitive or predecisional information should be released.

A facility may submit a bid for receipt of CERCLA waste during a period of unacceptability. However, a facility must be acceptable in order to be awarded a contract for receipt of CERCLA waste.

Scope and Contents of the Notice. The responsible Agency must send the notice to the facility owner/operator by certified and first-class mail, return receipt requested. The

certified notice, if not acknowledged by the receipt return card, will be considered to have been received by the addressee if properly sent by first-class mail to the last address known to the responsible Agency. The notice should contain the following:

- A finding that the facility may have conditions that render it unacceptable for receipt of off-site waste, based upon available information from an RFA, an inspection, or other data sources;
- A description of the specific acts, omissions or conditions that form the basis of the findings;
- Notice that the facility owner/operator has the opportunity to request an informal conference with the responsible government official to discuss the basis for the facility's unacceptability determination under this revised policy, provided that such a request is made within 10 calendar days from the date of the notice. The owner/operator may submit written comments within 30 calendar days from the date of the notice in lieu of holding the conference.
- Notice that failure to request an informal meeting or submit written comments will result in no further consideration of the determination by the responsible Agency during the 60 calendar days after issuance of the notice. The responsible Agency will cease any transport of CERCLA waste to the facility on the 60th calendar day after issuance of the notice.
- Notice that the owner/operator may request, within 10 calendar days of hearing from the responsible government official after the informal conference or the submittal of written comments, a reconsideration of the determination by the Regional Administrator or appropriate State official. The Regional Administrator or State official may agree to review the determination at his or her discretion; and
- Notice that such a review by the Regional Administrator or appropriate State official, if agreed to, will be conducted within 60 calendar days of the initial notice, if possible, but that the review will not stay the determination.

The facility may continue to receive CERCLA waste for 60 calendar days after issuance of the initial notice. As indicated above, facility owners or operators may request an informal conference with the responsible government official

within 10 calendar days from the date of issuance of the notice, to discuss the basis for a violation or release determination and its relevance to the facility's acceptability to receive CERCLA wastes. Any such meeting should take place within 30 calendar days of the date the initial notice is issued. If unacceptability is based on a State inspection or enforcement action, a representative of the State should attend the meeting. If the State does not attend, EPA will notify the State of the outcome of the meeting. The owner/opeator may submit written comments within 30 calendar days from the date of the notice in lieu of holding the conference. If the responsible Agency does not find that the information submitted at the informal conference or in comments is sufficient to support a finding of acceptability to receive CERCLA wastes, it should so inform the facility orally or in writing.

Within 10 calendar days of hearing from the responsible government official after the informal conference or the submittal of written comments, the facility owner or operator may request a reconsideration of the determination by the Regional Administrator or appropriate State official. The Regional Administrator or appropriate State official may use his or her discretion in deciding whether to conduct a review of the determination. Such a review, if granted, should be conducted within the 60 day period (originating with the notice) to the extent possible. The review will not stay the determination.

The RPM, OSC or equivalent site manager must stop transfer of waste to a facility on the 60th calendar day after issuance of a notice. The facility then remains unacceptable until such time as the responsible Agency notifies the owner or operator otherwise. The off-site coordinator and the OSC/RPM should maintain close coordination throughout the 60-day period.

In limited cases, the responsible Agency may use its discretion to extend the 60 day period if it requires more time to review a submission. The facility should be notified of any extension, and it remains acceptable during any extension.

The responsible Agency may also use its discretion to determine that a facility's unacceptability is immediately effective upon receipt of a notice to that effect. This may occur in situations such as, but not limited to, emergencies (e.g., fire or explosion) or egregious violations (e.g., criminal violations or chronic recalcitrance) or other situations that render the facility incapable of safely handling CERCLA waste.

Implementation of this notice provision does not relieve the Regions or States from taking appropriate enforcement action under RCRA or CERCLA.

C. Procedures for Facilities with Outstanding Unacceptability Determinations

Under the original May 1985 off-site policy, facilities determined to be unacceptable to receive CERCLA wastes were provided with written notice and were generally afforded informal opportunities to comment on the determination (the latter step was not required by the policy). Although the Agency believes that these steps represented adequate procedural safeguards for facilities seeking to receive CERCLA wastes, EPA has decided to provide an additional opportunity for review, in light of this revised policy, for facilities with unacceptability determinations already in place on the effective date of the revised policy.

Any such facility that wishes to meet with the responsible Agency to discuss the basis for a violation or release determination and its relevance to the facility's ability to receive CERCLA wastes, may request an informal conference with or submit written comments to the responsible Agency at any point up to the 60th day after the publication of the proposed rule on the off-site policy in the Federal Register. Such a meeting should take place within 30 calendar days of the request. If the responsible government Agency does not find the information presented to be sufficient to support a finding of acceptability to receive CERCLA wastes, then it should inform the facility orally or in writing that the unacceptability determination will continue to be in force. The facility may, within 10 calendar days of hearing from the responsible government official after the informal conference or submittal of written comments, petition the EPA Regional Administrator or appropriate State official for reconsideration. The Regional Administrator or State official may use his or her discretion in deciding whether to grant reconsideration.

These procedures for review of unacceptability determinations that were already in place on the effective date of this revised policy will not act to stay the effect of the underlying unacceptability determinations during the period of review.

D. Re-evaluating Unacceptability

An unacceptable facility can be reconsidered for management of CERCLA wastes whenever the responsible Agency finds that the facility meets the criteria described in the "Acceptability Criteria" section of this policy.

For the purposes of this policy, releases will be considered controlled upon issuance of an order or permit that

initiates and requires completion of one or more of the following: a facility-wide RCRA Facility Investigation (RFI); a Corrective Measures Study (CMS); or Corrective Measures Implementation (CMI). The facility must comply with the permit or order to remain acceptable to receive CERCLA waste. At the completion of any such phase of the corrective action process, the responsible Agency should again review the facility for acceptability under the off-site policy using the criteria listed in this document, and as necessary and appropriate, make new acceptability determinations, and issue additional orders or modify permit conditions to control identified releases. Releases that require a determination of environmental significance will be considered controlled upon issuance of an order or permit to conduct an RFI, CMS or CMI, or upon completion of an RFI which concludes that the release is not environmentally significant. Again, the facility must comply with the permit or order to remain acceptable to receive CERCLA waste.

If the facility is determined to be unacceptable as a result of relevant violations at or affecting the receiving unit, the State (if it made the initial determination) or EPA must determine that the receiving unit is in full physical compliance with all applicable requirements. Where a State not authorized for HSWA corrective action makes this determination, it should notify EPA immediately of the facility's return to compliance, so that the Agency can expeditiously inform the facility that it is once again acceptable to receive CERCLA wastes.

The responsible Agency will notify the facility of its return to acceptability by certified and first-class mail, return receipt requested.

E. Implementation Procedures

All remedial decision documents must discuss compliance with this policy for alternatives involving off-site management of CERCLA wastes. Decision documents for removal actions also should include such a discussion.

Provisions requiring compliance with this policy should be included in all contracts for response action, Cooperative Agreements with States undertaking Superfund response actions, and enforcement agreements. For ongoing projects, these provisions will be implemented as follows, taking into consideration the differences in applicable requirements for pre- and post-SARA decision documents:

- RI/FS: The Regions shall immediately notify Agency contractors and States that alternatives for off-site

management of wastes must be evaluated against the provisions of this policy.

- Remedial Design: The Regions shall immediately notify Agency contractors, the States, and the U.S. Army Corps of Engineers that all remedies that include off-site disposal of CERCLA waste must comply with the provisions of this policy.

- Remedial Action: The Regions shall immediately assess the status of compliance, releases and other environmental conditions at facilities receiving CERCLA waste from ongoing projects. If a facility is found not to be acceptable, the responsible Agency should notify the facility of its unacceptability.

- Enforcement: Cleanups by responsible parties under enforcement actions currently under negotiation and all future actions must comply with this policy. Existing agreements need not be amended. However, EPA reserves the right to apply these procedures to existing agreements, to the extent it is consistent with the release and reopener clauses in the settlement agreement.

If the response action is proceeding under a Federal lead, the Regions should work with the Corps of Engineers or EPA Contracts Officer to negotiate a contracts modification to an existing contract, if necessary. If the response action is proceeding under a State lead, the Regions should amend the Cooperative Agreement.